SEQUENCE LISTING

<110> WOLFF, Anne M
APPEL, Karen F
PETERSEN, Jesper F
POULSEN, Ulla
ARNAU, Jose
JACOBSEN, Mette D

<120> MUCOR RECOMBINANT GENE EXPRESSION

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<140> 10/092,947
<141> 2002-03-08

<150> US 60/274,650
<151> 2001-03-12

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<170> PatentIn version 3.2

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gtttgagata ttcggtgaaa gaaactattt ccataactga aaaagttaaa ccaaaaagat 180

atatgaaaat gatacattta cttgttcatt tgagctccat attaatcctc ttctcctcta 240

gttggcatgt ctttttgcaa gccaaagcta cctatagctc aggtctatta gatgtatcat 300

cttgatcttt tttgaattga ataaataaat ttcttgtatt ttaaaatgta acactttaat 360

gcctaatttc tgcgtgcaat gtcgtttttt tttctgtgat aaccctgaac tgctcaaatg 420

ctttcatgat gtcatctcat aatctgttgg gttacatcca atactgttaa attgtatgtg 480

ttgatcttga gtataaggga tcgatcattt gattgtcttt ttctctccta ttttcattaa 540

a atg atc act gac gaa cat ccg ttt gaa ttt gcg cct cag caa gat gaa 589
Met Ile Thr Asp Glu His Pro Phe Glu Phe Ala Pro Gln Gln Asp Glu
1 5 10 15

tac acg cag ctg ttg aca gag tta cat aac gaa tac tgc gct gag caa 637
Tyr Thr Gln Leu Leu Thr Glu Leu His Asn Glu Tyr Cys Ala Glu Gln
20 25 30

cca cta gat gtg ctt cag ttc tgc tcc aac ttt ttc att cgc aaa ctc 685
Pro Leu Asp Val Leu Gln Phe Cys Ser Asn Phe Phe Ile Arg Lys Leu
35 40 45

gaa gag cag cgc ttg gag cat aga aac aac cac cat tcc cgtaacaact 734
Glu Glu Gln Arg Leu Glu His Arg Asn Asn His His Ser
50 55 60

tgtttgatag taaagtgtct ctgccacgag cctagtgatg gatgctaacg tttttcctta 794

g ccn aat gat acc agt aat gat tta cat cct ttg tgt gag caa cca caa 843
Pro Asn Asp Thr Ser Asn Asp Leu His Pro Leu Cys Glu Gln Pro Gln
65 70 75

gaa gac ttt tca caa cag caa ggc atc cag tgg gaa acc acg cat atg 891
Glu Asp Phe Ser Gln Gln Gln Gly Ile Gln Trp Glu Thr Thr His Met
80 85 90

ggc cat ccc aac gac cac ggt gct ctt cat gat gat gat gat gat ccg 939
Gly His Pro Asn Asp His Gly Ala Leu His Asp Asp Asp Asp Asp Pro
95 100 105

ttg gaa gac gaa gac gat gaa gag ttt gac aaa ttt tca act gaa cct 987
Leu Glu Asp Glu Asp Asp Glu Glu Phe Asp Lys Phe Ser Thr Glu Pro
110 115 120 125

ttg ccc tcg ctg cct ccc aca aac tat aac cgt ggc cgc cgc aca tct 1035
Leu Pro Ser Leu Pro Pro Thr Asn Tyr Asn Arg Gly Arg Arg Thr Ser
130 135 140

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gtt aag tgc aga gag cat ggc acc cag cgc caa cca aga ctt tgt caa     1083
Val Lys Cys Arg Glu His Gly Thr Gln Arg Gln Pro Arg Leu Cys Gln
            145                 150                 155

ggt cat cat ccc caa atc tca ggc aca agc gag cgc atc aaa gtc tcc     1131
Gly His His Pro Gln Ile Ser Gly Thr Ser Glu Arg Ile Lys Val Ser
        160                 165                 170

atc agc aac aac ttt ttg ttt cgc aac ctg gac gaa gag cag tac ctg     1179
Ile Ser Asn Asn Phe Leu Phe Arg Asn Leu Asp Glu Glu Gln Tyr Leu
    175                 180                 185

gat gtg gtg aat gcc atg tct gaa aag cgc gtc gtc aag ggc acc aca     1227
Asp Val Val Asn Ala Met Ser Glu Lys Arg Val Val Lys Gly Thr Thr
190                 195                 200                 205

gtg atc gag caa ggc agt gtg ggt gat ttc ttc tac gtc gtc gag tcg     1275
Val Ile Glu Gln Gly Ser Val Gly Asp Phe Phe Tyr Val Val Glu Ser
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ggt act ttg gat tgt ttt att ggg caa aac aag gtt acc aac tat gag     1323
Gly Thr Leu Asp Cys Phe Ile Gly Gln Asn Lys Val Thr Asn Tyr Glu
            225                 230                 235

gca ggt ggt agc ttc ggt gaa tta gcc tta atg tac aac gcc cct cgt     1371
Ala Gly Gly Ser Phe Gly Glu Leu Ala Leu Met Tyr Asn Ala Pro Arg
        240                 245                 250

gct gct act att att aca aca tca gac tct gtg ctt tgg gct ctg gac     1419
Ala Ala Thr Ile Ile Thr Thr Ser Asp Ser Val Leu Trp Ala Leu Asp
    255                 260                 265

aga aac act tcg gca cca tcc ttg atg gag aac acc tca cgc aaa aga     1467
Arg Asn Thr Ser Ala Pro Ser Leu Met Glu Asn Thr Ser Arg Lys Arg
270                 275                 280                 285

cgc atg tat gaa tac ttc tta tca gaa gtc gtc ttg tta aaa tcc ctg     1515
Arg Met Tyr Glu Tyr Phe Leu Ser Glu Val Val Leu Leu Lys Ser Leu
                290                 295                 300

gaa tca tat gaa cag cat aaa att gcg gat gcc ctc gaa tca gtt tat     1563
Glu Ser Tyr Glu Gln His Lys Ile Ala Asp Ala Leu Glu Ser Val Tyr
            305                 310                 315

ttt gaa gat gga cag gag gtt gtg aag cag ggt gat gtc gga gat cag     1611
Phe Glu Asp Gly Gln Glu Val Val Lys Gln Gly Asp Val Gly Asp Gln
        320                 325                 330

ttc tac atc att gaa tcc ggt gaa gcc atc gtc ctg aag gaa gag aac     1659
Phe Tyr Ile Ile Glu Ser Gly Glu Ala Ile Val Leu Lys Glu Glu Asn
    335                 340                 345

ggc gtc cag caa cag gtg aac cag ctt gag cga gga tcc tac ttt gga     1707
Gly Val Gln Gln Gln Val Asn Gln Leu Glu Arg Gly Ser Tyr Phe Gly
350                 355                 360                 365

ggtaagatgg agcttgttgg ggttggtgat gtgtcgctaa ccactgtgtg ata gaa      1763
                                                        Glu
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ctg gcc ctg tta aac gat gct cct cga gct gca acc gta gtt gct cac     1811
Leu Ala Leu Leu Asn Asp Ala Pro Arg Ala Ala Thr Val Val Ala His
            370                 375                 380

ggc aga ctc aag tgc gct aca ctg ggc aaa aag gca ttc act cgt ctt     1859
Gly Arg Leu Lys Cys Ala Thr Leu Gly Lys Lys Ala Phe Thr Arg Leu
        385                 390                 395

ctt ggc cct gtt ttg gac atc ttg aag cgt aat tca gaa aac tat cat     1907
Leu Gly Pro Val Leu Asp Ile Leu Lys Arg Asn Ser Glu Asn Tyr His
    400                 405                 410

gct gtc att aac cag caa tca taatcgcacc aaaaagttac actagatttc       1958
Ala Val Ile Asn Gln Gln Ser
415                 420

aaataaaaac catggatact ttccgatctg atgttgactt gactgtaaca aagcgacagg   2018

aaaaagaaac ttgatttgct tcctgaccaa caatgcagcc aatctcctta aacaagatgc   2078

tctctatttc ggcctgaaaa tataacctcc ttgatttcgt attttgktgt tgtgcttttt   2138

tccctctctc tctcttcttc ttttcactct tgttataaaa aaaatatgac gggtatgatt   2198

cacagtatgg agagcaaccc ttgatgagcc tccacctcaa agcgccagcg gcctcttcta   2258

atctgcctgg cacaggtatt gccaatctac caaatcaaag acacaagatt gttgccaaaa   2318

atggcgccaa tttcaccatc atggtttgtg gtaagacata tgtatacttg caagtgaaag   2378

gaccaggtaa ctgaattttg cttaggtgaa tcgggtgtcg gaaaaacaac ctttgtaaac   2438

acactgttca catccaccat caaggagcca aagaacctga caaagagaca tctcaagaca   2498

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Pro Leu Asp Val Leu Gln Phe Cys Ser Asn Phe Phe Ile Arg Lys Leu
        35                  40                  45
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Glu Glu Gln Arg Leu Glu His Arg Asn Asn His His Ser Pro Asn Asp
    50                  55                  60

Thr Ser Asn Asp Leu His Pro Leu Cys Glu Gln Pro Gln Glu Asp Phe
65                  70                  75                  80

Ser Gln Gln Gln Gly Ile Gln Trp Glu Thr Thr His Met Gly His Pro
                85                  90                  95

Asn Asp His Gly Ala Leu His Asp Asp Asp Asp Asp Pro Leu Glu Asp
            100                 105                 110

Glu Asp Asp Glu Glu Phe Asp Lys Phe Ser Thr Glu Pro Leu Pro Ser
        115                 120                 125

Leu Pro Pro Thr Asn Tyr Asn Arg Gly Arg Arg Thr Ser Val Lys Cys
    130                 135                 140

Arg Glu His Gly Thr Gln Arg Gln Pro Arg Leu Cys Gln Gly His His
145                 150                 155                 160

Pro Gln Ile Ser Gly Thr Ser Glu Arg Ile Lys Val Ser Ile Ser Asn
                165                 170                 175

Asn Phe Leu Phe Arg Asn Leu Asp Glu Glu Gln Tyr Leu Asp Val Val
            180                 185                 190

Asn Ala Met Ser Glu Lys Arg Val Val Lys Gly Thr Thr Val Ile Glu
        195                 200                 205

Gln Gly Ser Val Gly Asp Phe Phe Tyr Val Val Glu Ser Gly Thr Leu
    210                 215                 220

Asp Cys Phe Ile Gly Gln Asn Lys Val Thr Asn Tyr Glu Ala Gly Gly
225                 230                 235                 240

Ser Phe Gly Glu Leu Ala Leu Met Tyr Asn Ala Pro Arg Ala Ala Thr
                245                 250                 255

Ile Ile Thr Thr Ser Asp Ser Val Leu Trp Ala Leu Asp Arg Asn Thr
            260                 265                 270

Ser Ala Pro Ser Leu Met Glu Asn Thr Ser Arg Lys Arg Arg Met Tyr
        275                 280                 285
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```
Glu Tyr Phe Leu Ser Glu Val Val Leu Leu Lys Ser Leu Glu Ser Tyr
    290                 295                 300

Glu Gln His Lys Ile Ala Asp Ala Leu Glu Ser Val Tyr Phe Glu Asp
305                 310                 315                 320

Gly Gln Glu Val Val Lys Gln Gly Asp Val Gly Asp Gln Phe Tyr Ile
                325                 330                 335

Ile Glu Ser Gly Glu Ala Ile Val Leu Lys Glu Glu Asn Gly Val Gln
            340                 345                 350

Gln Gln Val Asn Gln Leu Glu Arg Gly Ser Tyr Phe Gly Glu Leu Ala
        355                 360                 365

Leu Leu Asn Asp Ala Pro Arg Ala Ala Thr Val Val Ala His Gly Arg
    370                 375                 380

Leu Lys Cys Ala Thr Leu Gly Lys Lys Ala Phe Thr Arg Leu Leu Gly
385                 390                 395                 400

Pro Val Leu Asp Ile Leu Lys Arg Asn Ser Glu Asn Tyr His Ala Val
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Ile Asn Gln Gln Ser
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Ser Ala Ser Asn Arg Met Pro Lys Arg Leu Val Glu Thr Ala Glu Pro
1               5                   10                  15

tcg cct tca tct caa aca arn atg gac gat ttt gaa atc aaa cag cca       96
Ser Pro Ser Ser Gln Thr Xaa Met Asp Asp Phe Glu Ile Lys Gln Pro
            20                  25                  30

ata ggt aac aga tgg acg gca tct gca tgt act gtt act gat aga cac      144
Ile Gly Asn Arg Trp Thr Ala Ser Ala Cys Thr Val Thr Asp Arg His
        35                  40                  45

ctg ctt caa ggc tac gga tca tct gcc atg gtt tat agc gca gtg tat      192
Leu Leu Gln Gly Tyr Gly Ser Ser Ala Met Val Tyr Ser Ala Val Tyr
    50                  55                  60

ata cct cac aac aaa cgg gtc gcc atc aag gtg att gat ctg gac atg      240
Ile Pro His Asn Lys Arg Val Ala Ile Lys Val Ile Asp Leu Asp Met
65                  70                  75                  80

ttt gag cgc aac caa ata gac gag ctg agg gta gtacatggca gcacacacta    293
Phe Glu Arg Asn Gln Ile Asp Glu Leu Arg Val
                85                  90

ggattccctt cttattgaca aaacgtatat atng aga gag aca gcc ttg atg gct    348
                                    Arg Glu Thr Ala Leu Met Ala
                                                95

ctg tcc aag cat cca cat gtg ttg cga gtc tac ggc tca ttt gtc cac      396
Leu Ser Lys His Pro His Val Leu Arg Val Tyr Gly Ser Phe Val His
    100                 105                 110

gga tcc aag ctg tac att gtc act cct tat atg gca gta gga tcc tgt      444
Gly Ser Lys Leu Tyr Ile Val Thr Pro Tyr Met Ala Val Gly Ser Cys
115                 120                 125                 130

ctc gat atc atg aag ttg agt ttc ccc gac ggc cta gac gag att agc      492
Leu Asp Ile Met Lys Leu Ser Phe Pro Asp Gly Leu Asp Glu Ile Ser
                135                 140                 145

att gct act atc cta aaa cag gca ctg gaa gga cta gcc tat ttg cac      540
Ile Ala Thr Ile Leu Lys Gln Ala Leu Glu Gly Leu Ala Tyr Leu His
            150                 155                 160

aaa aat ggc cac atc cat cga gac gta aag gca ggc aac ctg ctg atg      588
Lys Asn Gly His Ile His Arg Asp Val Lys Ala Gly Asn Leu Leu Met
        165                 170                 175
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gat gag gac ggc tct gtg ctg ctg gcg gat ggt gtg ctc acc aaa g        634
Asp Glu Asp Gly Ser Val Leu Leu Ala Asp Gly Val Leu Thr Lys
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Ser Pro Ser Ser Gln Thr Xaa Met Asp Asp Phe Glu Ile Lys Gln Pro
            20                  25                  30


Ile Gly Asn Arg Trp Thr Ala Ser Ala Cys Thr Val Thr Asp Arg His
        35                  40                  45


Leu Leu Gln Gly Tyr Gly Ser Ser Ala Met Val Tyr Ser Ala Val Tyr
    50                  55                  60


Ile Pro His Asn Lys Arg Val Ala Ile Lys Val Ile Asp Leu Asp Met
65                  70                  75                  80


Phe Glu Arg Asn Gln Ile Asp Glu Leu Arg Val Arg Glu Thr Ala Leu
                85                  90                  95


Met Ala Leu Ser Lys His Pro His Val Leu Arg Val Tyr Gly Ser Phe
            100                 105                 110


Val His Gly Ser Lys Leu Tyr Ile Val Thr Pro Tyr Met Ala Val Gly
        115                 120                 125


Ser Cys Leu Asp Ile Met Lys Leu Ser Phe Pro Asp Gly Leu Asp Glu
    130                 135                 140


Ile Ser Ile Ala Thr Ile Leu Lys Gln Ala Leu Glu Gly Leu Ala Tyr
145                 150                 155                 160
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```
Leu His Lys Asn Gly His Ile His Arg Asp Val Lys Ala Gly Asn Leu
                165                 170                 175

Leu Met Asp Glu Asp Gly Ser Val Leu Leu Ala Asp Gly Val Leu Thr
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Lys
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  Tyr Ile Val Gln Glu Ile Met Glu Ala Asp Leu His Gln Ile Ile Arg
  1               5                   10                  15

tcc ggc cag ccg ttg acg gat gct cat ttc caa tac ttt gtc tac caa       97
Ser Gly Gln Pro Leu Thr Asp Ala His Phe Gln Tyr Phe Val Tyr Gln
            20                  25                  30
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```
atc tgc aga gga cta aag tac att cac agt gcc aat gtaagcatat          143
Ile Cys Arg Gly Leu Lys Tyr Ile His Ser Ala Asn
        35                  40

atagacgatt tgacaacatg cgtattaatg tgctttgctc tcaaag gtg ttg cat      198
                                                  Val Leu His
                                                  45

cga gat ctc aag cca ggt aaa tta cga ata aac ggc ata aca cag atc      246
Arg Asp Leu Lys Pro Gly Lys Leu Arg Ile Asn Gly Ile Thr Gln Ile
        50                  55                  60

acg tcgtgatatt tatcatgtga taatttataa acaggcaacc tccttgtcaa          299
Thr


cgctgattgc gaattaaagg taaggaaaca cagggtgcag acaattcgta catgtattaa  359

atcgagg gaa cca aag att tgt gat ttc ggc ttg gct cgt ggc tat tct      408
        Glu Pro Lys Ile Cys Asp Phe Gly Leu Ala Arg Gly Tyr Ser
        65                  70                  75

gag aac gac gaa cac aat gtg ggc ttc atg acc gaa tat gtaagttatc      457
Glu Asn Asp Glu His Asn Val Gly Phe Met Thr Glu Tyr
    80                  85                  90

tgatgcttga gtgtgaggac gtggtgtaac agtgtgttta tttgaaag gtt gca aca    514
                                                  Val Ala Thr


aga tgg tac cgc gcc cct gaa ata atg                                 541
Arg Trp Tyr Arg Ala Pro Glu Ile Met
95                  100


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<213>  Mucor circinelloides

<400>  6

Tyr Ile Val Gln Glu Ile Met Glu Ala Asp Leu His Gln Ile Ile Arg
1               5                   10                  15


Ser Gly Gln Pro Leu Thr Asp Ala His Phe Gln Tyr Phe Val Tyr Gln
            20                  25                  30


Ile Cys Arg Gly Leu Lys Tyr Ile His Ser Ala Asn Val Leu His Arg
        35                  40                  45


Asp Leu Lys Pro Gly Lys Leu Arg Ile Asn Gly Ile Thr Gln Ile Thr
    50                  55                  60
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Glu Pro Lys Ile Cys Asp Phe Gly Leu Ala Arg Gly Tyr Ser Glu Asn
65                  70                  75                  80

Asp Glu His Asn Val Gly Phe Met Thr Glu Tyr Val Ala Thr Arg Trp
                85                  90                  95

Tyr Arg Ala Pro Glu Ile Met
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1               5                   10                  15

tta aag cgc ttt gca tta cca ggc ggt tca gca gca gca gca ccc ggc       96
Leu Lys Arg Phe Ala Leu Pro Gly Gly Ser Ala Ala Ala Ala Pro Gly
            20                  25                  30

gga cga tcg ccc aac ggc agc ggc gag agc att tcg tgc gtc ttg tgg      144
Gly Arg Ser Pro Asn Gly Ser Gly Glu Ser Ile Ser Cys Val Leu Trp
        35                  40                  45

aac gac ctg ttc ttc atc aca ggc acc gac att gtg cgc tcg ctg acc      192
Asn Asp Leu Phe Phe Ile Thr Gly Thr Asp Ile Val Arg Ser Leu Thr
    50                  55                  60

ttt cgc ttc cat gcg ttt ggc cga ccc gtt acg aac gca aag aag ttt      240
Phe Arg Phe His Ala Phe Gly Arg Pro Val Thr Asn Ala Lys Lys Phe
65                  70                  75                  80

gaa gag ggc ata ttt tct gat ttg cgc aac tta aaa cca ggt cat gat      288
Glu Glu Gly Ile Phe Ser Asp Leu Arg Asn Leu Lys Pro Gly His Asp
                85                  90                  95

gct cgg ttg gag gaa ccc aaa tct gaa ttg ctg gac atg ctc tac aag      336
Ala Arg Leu Glu Glu Pro Lys Ser Glu Leu Leu Asp Met Leu Tyr Lys
            100                 105                 110

aac aat tgc atc cgc aca caa aaa aaa caa aaa gta ttt ttc tgg ttt      384
Asn Asn Cys Ile Arg Thr Gln Lys Lys Gln Lys Val Phe Phe Trp Phe
        115                 120                 125
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<213> Mucor circinelloides

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Lys Phe Phe Leu Ala Thr Ala Pro Val Asn Trp Glu His Asn Lys Pro
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Leu Lys Arg Phe Ala Leu Pro Gly Gly Ser Ala Ala Ala Ala Pro Gly
20 25 30

Gly Arg Ser Pro Asn Gly Ser Gly Glu Ser Ile Ser Cys Val Leu Trp
35 40 45

Asn Asp Leu Phe Phe Ile Thr Gly Thr Asp Ile Val Arg Ser Leu Thr
50 55 60

Phe Arg Phe His Ala Phe Gly Arg Pro Val Thr Asn Ala Lys Lys Phe
65 70 75 80

Glu Glu Gly Ile Phe Ser Asp Leu Arg Asn Leu Lys Pro Gly His Asp
85 90 95

Ala Arg Leu Glu Glu Pro Lys Ser Glu Leu Leu Asp Met Leu Tyr Lys
100 105 110

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115 120 125

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tattatctgt ttcatgtaaa aaaaaactct gttgtggtac aaacattagt gtgaaccacg 180

cgcagccata ccactagtca aaataatgct ctactgcaaa aaatgacgtt tgacgaataa 240

tgcaacgtaa agatggttta gaaacccttg atatccaaat tacacgtgta gcagccttcg 300

tgggtatttt tcatcacaac actactaggt agctcaggga tagttcaaac gggcaatttc 360

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catctacagg gacatctgtg agatacatct gattgctcga caagcggaca atagatgaca 480

cgttatcaat gctatcactc taaaatgtca tgtctgactg agtccattgc aatcatcact 540

ccatccgaca tcaggtcaca atttatgctt ctattttcca atggatccga atccgattca 600

aacaagatta attctccctc aaaataccca tgaagtgtga gacattgcga aatgttatat 660

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tatattttat aaattctaac a 741

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tgtgattgag cgaaaacttc catggaggta actcccgaaa ctttgttttt ctcactgggc 180

ttgataaaat gaaaaaacta aaaatctcac gaacatggta caaggggaaa ccttgaaatt 240

agtagcggat gatgccagca taacgatgat ttctctctct ctgctctact cttttatgtt 300

gtggtgattc tcttcacaga gcagcactac tgtcaacatg gagcgatatt ctccaatttc 360

tccaaatgtc ggtatttcat aaattgagat gcctttcaaa tgcctttcag atgcctttcc 420

aaggcacttg ctaaaataat gcatttgctg gcatacaaac aataactaat tctccgggaa 480

ttgccgggca aatcaccttg tgtgcagtga ttagtatatc gaaaggcggg gatatctaga 540

actttgtttg tgtggtaaca ttaaggttta gaagcctttt tttatagcgt cctaccatga 600

cttcatgtgg aggatccaat caagtcttta tttatacctt tgacagggtt aaactaaaaa 660

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ggccccaaca gccaatcaaa gacgtcccaa tttaaagggg atgttggcat ctaatgttga    180

tcgcagatag acacacctaa aattatgcac tgttttgggt tacacattga ttttaggtaa    240

ccacaccatc tagaattcag gacatgtaga agccggtata tgagatggaa ggtacattgt    300

ttacaagtac tagcgtcaat aaagtatcaa atagattcag tgagtagtct gctatcactc    360

tatactagcg agcacagtca atcggccgat aagaaatagg aacagaaata tacccccaac    420

atcagtggtc ttcaacggaa tctcaaacat gaaactgtta aatatgagat ggatcttgcc    480

tattcttctc tcttgctcat tcttctcatc atcgcagaat acacatacgt aat atg       536
                                                            Met
                                                             1

gct gat ttc aca gat tct ctc atc aag aac att ggc gtt cac tca tca       584
Ala Asp Phe Thr Asp Ser Leu Ile Lys Asn Ile Gly Val His Ser Ser
            5                  10                  15

tct cct gtc atg aca tct gtc aat atg ggt caa ttg ggt gaa aag ctt       632
Ser Pro Val Met Thr Ser Val Asn Met Gly Gln Leu Gly Glu Lys Leu
        20                  25                  30

cgt caa gct cgt aca aca aca ctt gct tcc tta tct caa gct ctt tca       680
Arg Gln Ala Arg Thr Thr Thr Leu Ala Ser Leu Ser Gln Ala Leu Ser
    35                  40                  45

aag aag ccc gaa gct gct gct gct gct gcc act gcc ccc aac gct gtt       728
Lys Lys Pro Glu Ala Ala Ala Ala Ala Ala Thr Ala Pro Asn Ala Val
50                  55                  60                  65

aat gaa agt acc acc aca ccc acc aca atg caa ctc cct gct tcg gaa       776
Asn Glu Ser Thr Thr Thr Pro Thr Thr Met Gln Leu Pro Ala Ser Glu
                70                  75                  80

aaa gcc act agt caa ttg gag atc aat gtg gtt gaa gct cgt aat ttg       824
Lys Ala Thr Ser Gln Leu Glu Ile Asn Val Val Glu Ala Arg Asn Leu
            85                  90                  95
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acc att gct gat gcg cgc aaa gcc gac acc tac tgt att gtt cat tac      872
Thr Ile Ala Asp Ala Arg Lys Ala Asp Thr Tyr Cys Ile Val His Tyr
        100                 105                 110

gaa ggc aac acc aca tca acg ctt gat aaa gta gat gat ggc atc ttg      920
Glu Gly Asn Thr Thr Ser Thr Leu Asp Lys Val Asp Asp Gly Ile Leu
    115                 120                 125

ccc agc acg cct ctg gtg att aaa tct caa gtc gct agc ggt gca ttc      968
Pro Ser Thr Pro Leu Val Ile Lys Ser Gln Val Ala Ser Gly Ala Phe
130                 135                 140                 145

aag gca ttt gaa atc atg atg agc gct agt tct ccc aag tgg atg cat     1016
Lys Ala Phe Glu Ile Met Met Ser Ala Ser Ser Pro Lys Trp Met His
                150                 155                 160

cgt gtc aac ttg taagttgcta tccagaatat gtcaaaaagg gctctgcgct        1068
Arg Val Asn Leu
            165

aaccatgtta ctatagt gat gta act gct ggt aac aag gag atc act gtg      1118
                  Asp Val Thr Ala Gly Asn Lys Glu Ile Thr Val
                              170                 175

ttt gtc tat gat cgt ggt aac aaa ttg ccc aat ggt gaa gat cgc ttc     1166
Phe Val Tyr Asp Arg Gly Asn Lys Leu Pro Asn Gly Glu Asp Arg Phe
            180                 185                 190

ttg ggc atg tct agc att gtt ccc aac ttg gtc aac aag aag acg gtc     1214
Leu Gly Met Ser Ser Ile Val Pro Asn Leu Val Asn Lys Lys Thr Val
        195                 200                 205

gag ctg atc ttt cct ctt cac ggc cgt cct gac gat gat caa gaa gtt     1262
Glu Leu Ile Phe Pro Leu His Gly Arg Pro Asp Asp Asp Gln Glu Val
    210                 215                 220

act ggt gat gtc cgt ctt caa gtt act ttt atc gac cct aaa aag         1307
Thr Gly Asp Val Arg Leu Gln Val Thr Phe Ile Asp Pro Lys Lys
225                 230                 235

gtaattttat atgagtatga ttcttgacag ctgatgtctg acacttctaa aaccctattc   1367

aag gct aat ctt aag cca gag gat ttc cgc att gtg cgt atg att ggt     1415
    Ala Asn Leu Lys Pro Glu Asp Phe Arg Ile Val Arg Met Ile Gly
    240                 245                 250

caa ggc tca gtg ggt aag gtg tat gag gtg atc aag cgt gat tct ggc     1463
Gln Gly Ser Val Gly Lys Val Tyr Glu Val Ile Lys Arg Asp Ser Gly
255                 260                 265                 270

cgt acc tat gcc atg aag gtg ctc tct aag cgt ctc ttg ctc gcc gag     1511
Arg Thr Tyr Ala Met Lys Val Leu Ser Lys Arg Leu Leu Leu Ala Glu
                275                 280                 285

aat gaa gtc gat act gcc ttc aac gag cgc aat gtg ctg gtt cag tct     1559
Asn Glu Val Asp Thr Ala Phe Asn Glu Arg Asn Val Leu Val Gln Ser
            290                 295                 300
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ctc tca agc cct ttc att gcc aat ctc aag tac agt ttc caa aca aca      1607
Leu Ser Ser Pro Phe Ile Ala Asn Leu Lys Tyr Ser Phe Gln Thr Thr
        305                 310                 315

aac cat ctc ttc ttg gtt atg gat tac ttt ccg ggt ggc gaa ttg ttt      1655
Asn His Leu Phe Leu Val Met Asp Tyr Phe Pro Gly Gly Glu Leu Phe
    320                 325                 330

gat ttc ctg gag cgt gag cgt tgt ttg agc gag aag cgt tgc caa ttc      1703
Asp Phe Leu Glu Arg Glu Arg Cys Leu Ser Glu Lys Arg Cys Gln Phe
335                 340                 345                 350

ttt gct gcc gag att gtg tgt gcc ttt gac aac atc cat gct cgc aac      1751
Phe Ala Ala Glu Ile Val Cys Ala Phe Asp Asn Ile His Ala Arg Asn
                355                 360                 365

att gtc tat cgt aac ctg aag cca gag agc atc ttg ctg gat gca cat      1799
Ile Val Tyr Arg Asn Leu Lys Pro Glu Ser Ile Leu Leu Asp Ala His
            370                 375                 380

gga cac att gcc ttg aca gat ttc ggc tta tgc aag caa ttg aag aac      1847
Gly His Ile Ala Leu Thr Asp Phe Gly Leu Cys Lys Gln Leu Lys Asn
        385                 390                 395

aag atg gat ttg att caa ggt gtg cct caa gtc att aca caa gaa tac      1895
Lys Met Asp Leu Ile Gln Gly Val Pro Gln Val Ile Thr Gln Glu Tyr
    400                 405                 410

ctc gcc cct gaa atg gta atg caa aag ccc tat ggc atg gct gcc gac      1943
Leu Ala Pro Glu Met Val Met Gln Lys Pro Tyr Gly Met Ala Ala Asp
415                 420                 425                 430

tgg tgg agt ctc ggt gtt ttg atg ttt gag ctg ttg act gga tct cct      1991
Trp Trp Ser Leu Gly Val Leu Met Phe Glu Leu Leu Thr Gly Ser Pro
                435                 440                 445

cct ttc cat tct gtt gaa caa ggt gaa ttg ttt aga caa atc ctg gaa      2039
Pro Phe His Ser Val Glu Gln Gly Glu Leu Phe Arg Gln Ile Leu Glu
            450                 455                 460

gct ccc att aaa ttc cct gct ggg ggc tgc att aca gag gaa gcc aag      2087
Ala Pro Ile Lys Phe Pro Ala Gly Gly Cys Ile Thr Glu Glu Ala Lys
        465                 470                 475

gat ttc atc tgc caa ctg ctg gag cgt gat cct gcc aag cgt ctg ggc      2135
Asp Phe Ile Cys Gln Leu Leu Glu Arg Asp Pro Ala Lys Arg Leu Gly
    480                 485                 490

tcc cat ggt gat gtt gct cag gtc aaa gca cat cca ttc ttt aag gat      2183
Ser His Gly Asp Val Ala Gln Val Lys Ala His Pro Phe Phe Lys Asp
495                 500                 505                 510

ctc aac tgg gat gtc gtt tac aag aag caa atg cag ctt ccc ttt gtg      2231
Leu Asn Trp Asp Val Val Tyr Lys Lys Gln Met Gln Leu Pro Phe Val
                515                 520                 525

ccc gag gta gaa gag cag ctc cgc gaa gaa gcc att gct gct gct gct      2279
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Pro Glu Val Glu Glu Gln Leu Arg Glu Glu Ala Ile Ala Ala Ala Ala
            530                 535                 540

gcc att agc att cct gtg acc aac agc aag acc gag tct acc aat gcc     2327
Ala Ile Ser Ile Pro Val Thr Asn Ser Lys Thr Glu Ser Thr Asn Ala
        545                 550                 555

aat gtg atg cct gtg gct gat caa tcc aaa ttc aag gga ttt agc tat     2375
Asn Val Met Pro Val Ala Asp Gln Ser Lys Phe Lys Gly Phe Ser Tyr
    560                 565                 570

att cgt gaa gat gtc atg gca aag aag ggc gag cat cgt ctg ggt gtc     2423
Ile Arg Glu Asp Val Met Ala Lys Lys Gly Glu His Arg Leu Gly Val
575                 580                 585                 590

aat cct gag gat gaa gat ccc gaa gtt gat ttc tgg ttt aga cag         2468
Asn Pro Glu Asp Glu Asp Pro Glu Val Asp Phe Trp Phe Arg Gln
                595                 600                 605

taaaaatcgt ccatctatcc ttacattttg tacatatata ttaatcaaga ccccccctcct   2528

cattcaataa agcacatatt tgttcatata ccaaaaaaaa aaaaaaaaaa              2578


<210>  12
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<212>  PRT
<213>  Mucor circinelloides

<400>  12

Met Ala Asp Phe Thr Asp Ser Leu Ile Lys Asn Ile Gly Val His Ser
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Ser Ser Pro Val Met Thr Ser Val Asn Met Gly Gln Leu Gly Glu Lys
            20                  25                  30


Leu Arg Gln Ala Arg Thr Thr Thr Leu Ala Ser Leu Ser Gln Ala Leu
        35                  40                  45


Ser Lys Lys Pro Glu Ala Ala Ala Ala Ala Ala Thr Ala Pro Asn Ala
    50                  55                  60


Val Asn Glu Ser Thr Thr Thr Pro Thr Thr Met Gln Leu Pro Ala Ser
65                  70                  75                  80


Glu Lys Ala Thr Ser Gln Leu Glu Ile Asn Val Val Glu Ala Arg Asn
                85                  90                  95


Leu Thr Ile Ala Asp Ala Arg Lys Ala Asp Thr Tyr Cys Ile Val His
            100                 105                 110
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Tyr Glu Gly Asn Thr Thr Ser Thr Leu Asp Lys Val Asp Asp Gly Ile
        115                 120                 125

Leu Pro Ser Thr Pro Leu Val Ile Lys Ser Gln Val Ala Ser Gly Ala
    130                 135                 140

Phe Lys Ala Phe Glu Ile Met Met Ser Ala Ser Ser Pro Lys Trp Met
145                 150                 155                 160

His Arg Val Asn Leu Asp Val Thr Ala Gly Asn Lys Glu Ile Thr Val
                165                 170                 175

Phe Val Tyr Asp Arg Gly Asn Lys Leu Pro Asn Gly Glu Asp Arg Phe
            180                 185                 190

Leu Gly Met Ser Ser Ile Val Pro Asn Leu Val Asn Lys Lys Thr Val
        195                 200                 205

Glu Leu Ile Phe Pro Leu His Gly Arg Pro Asp Asp Asp Gln Glu Val
    210                 215                 220

Thr Gly Asp Val Arg Leu Gln Val Thr Phe Ile Asp Pro Lys Lys Ala
225                 230                 235                 240

Asn Leu Lys Pro Glu Asp Phe Arg Ile Val Arg Met Ile Gly Gln Gly
                245                 250                 255

Ser Val Gly Lys Val Tyr Glu Val Ile Lys Arg Asp Ser Gly Arg Thr
            260                 265                 270

Tyr Ala Met Lys Val Leu Ser Lys Arg Leu Leu Leu Ala Glu Asn Glu
        275                 280                 285

Val Asp Thr Ala Phe Asn Glu Arg Asn Val Leu Val Gln Ser Leu Ser
    290                 295                 300

Ser Pro Phe Ile Ala Asn Leu Lys Tyr Ser Phe Gln Thr Thr Asn His
305                 310                 315                 320

Leu Phe Leu Val Met Asp Tyr Phe Pro Gly Gly Glu Leu Phe Asp Phe
                325                 330                 335

Leu Glu Arg Glu Arg Cys Leu Ser Glu Lys Arg Cys Gln Phe Phe Ala
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            340                 345                 350

Ala Glu Ile Val Cys Ala Phe Asp Asn Ile His Ala Arg Asn Ile Val
        355                 360                 365

Tyr Arg Asn Leu Lys Pro Glu Ser Ile Leu Leu Asp Ala His Gly His
    370                 375                 380

Ile Ala Leu Thr Asp Phe Gly Leu Cys Lys Gln Leu Lys Asn Lys Met
385                 390                 395                 400

Asp Leu Ile Gln Gly Val Pro Gln Val Ile Thr Gln Glu Tyr Leu Ala
                405                 410                 415

Pro Glu Met Val Met Gln Lys Pro Tyr Gly Met Ala Ala Asp Trp Trp
            420                 425                 430

Ser Leu Gly Val Leu Met Phe Glu Leu Leu Thr Gly Ser Pro Pro Phe
        435                 440                 445

His Ser Val Glu Gln Gly Glu Leu Phe Arg Gln Ile Leu Glu Ala Pro
    450                 455                 460

Ile Lys Phe Pro Ala Gly Gly Cys Ile Thr Glu Glu Ala Lys Asp Phe
465                 470                 475                 480

Ile Cys Gln Leu Leu Glu Arg Asp Pro Ala Lys Arg Leu Gly Ser His
                485                 490                 495

Gly Asp Val Ala Gln Val Lys Ala His Pro Phe Phe Lys Asp Leu Asn
            500                 505                 510

Trp Asp Val Val Tyr Lys Lys Gln Met Gln Leu Pro Phe Val Pro Glu
        515                 520                 525

Val Glu Glu Gln Leu Arg Glu Glu Ala Ile Ala Ala Ala Ala Ala Ile
    530                 535                 540

Ser Ile Pro Val Thr Asn Ser Lys Thr Glu Ser Thr Asn Ala Asn Val
545                 550                 555                 560

Met Pro Val Ala Asp Gln Ser Lys Phe Lys Gly Phe Ser Tyr Ile Arg
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Glu Asp Val Met Ala Lys Lys Gly Glu His Arg Leu Gly Val Asn Pro
580 585 590

Glu Asp Glu Asp Pro Glu Val Asp Phe Trp Phe Arg Gln
595 600 605

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<212> DNA
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tatgaccaac atccacattt gcaacaacaa caacaacaac aacagcaaca ccaccaccac 120

caacaagagc cattaacgtg gacagatttg ccctttttgta agtactcaaa ttagtcaagt 180

gatagactca cacactcaca ctcacacaaa cctctagatg aagatccctc tctcatgatg 240

acaccaacta caccatctat atttacagct aataacaaca acccctatga tatcccttct 300

tctgcctcaa atgctacaca caccgcatct actacacata ctactaatac acaaatcata 360

tctgccgaag cactgcaaat tggtacctgg aagagaatga catttgaacc caatgacctc 420

tcatgccagt tcgatagaga cagcaaactc ttcagctggt gcatccaaga cggtatttcc 480

aagttcaaaa tggaattccc acaagaattt gtgcaatcca tcaagctatc acccttaaca 540

agtcgacctg gctgggcaga ttggagatga atgtactatc tactcaacac atcttgttct 600

acatggagac gccgcaacaa agctggattc aatgccgcga ctacactgaa gacaagcagg 660

cttccatcat cagcctgcac caactagacg gccctgcact tgcattaaag gcagaactag 720

aatccctctc taaggaaaac gactatctag ctaccatcat tcattaattt gcatatcatt 780

gattggtgcg cctgattaaa attgtgtaat ataaaatacc atgttgacct ctccccctcc 840

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aatcaacttt ctaaacaccc tataaaa 927

<210> 14
<211> 419
<212> DNA
<213> Mucor circinelloides

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gatctctcgg ttttttttttc tcttgcaaca tgtggtacat gcatttccag cttggatggc 60

tcactcattc caaagaaagt attccttgga tctcaaatgc aatccaatgg aaaacagatg 120

cttgggtcgt cttggtggca taaattggaa aaactgggtt ttccgttcat aaggtcccat 180

tttccgtgga aagtctaaaa tcgactgact tttttccaat gaggaaagcc tggaggaggt 240

cgacttgtat cacaacaagg ttgcttatga aatcaacaga gtcacatccc gtctaaaacc 300

cagtttggat ccgttttctt cgcttctatc tgtgggtgcg aggatttggt ataaaaagga 360

ctagattctc cacaacaatt tccatttttt ccctcattat cattcaataa tactgtaaa 419

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<223> n is a, c, g or t

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<223> n is a, c, g or t

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<222> (21)..(21)
<223> n is a, c, g or t

<400> 15
ggngaytayt tytaygtngt ngar 24

<210> 16
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<223> n is a, c, g or t

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<223> n is a, c, g or t

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<223> n is a, c, g or t

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<223> n is a, c, g or t

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<210> 17
<211> 36
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<220>
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<400> 17
actgcctcga gatgatcact gacgaacatc cgtttg 36

<210> 18
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<212> DNA
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<400> 18
acgctagcgg ccgccgcctg cgctttgagg tggaggctca tc 42

<210> 19
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<212> DNA
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<223> n is a, c, g or t

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<210> 20
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<223> n is a, c, g or t

<400> 20
rttytcnggy ttnarrtcnc krta 24

<210> 21
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<223> n is a, c, g or t

<220>
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<222> (31)..(31)
<223> n is a, c, g or t

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raaccaraar aanacyttyt gyttyttytg ngt 33

<210> 22
<211> 21
<212> DNA
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<223> n is a, c, g or t

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<210> 23
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<223> n is a, c, g or t

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catdatytcn ggngcnckrt acca 24

<210> 24

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<213> Mucor circinelloides

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tctacacagc atcacattcg atagatgggg ctgctgttta tgtgattaaa acctcactga 120

tattatctgt ttcatgtaaa aaaaaactct gttgtggtac aaacattagt gtgaaccacg 180

cgcagccata ccactagtca aaataatgct ctactgcaaa aaatgacgtt tgacgaataa 240

tgcaacgtaa agatggttta gaaacccttg atatccaaat tacacgtgta gcagccttcg 300

tgggtatttt tcatcacaac actactaggt agctcaggga tagttcaaac gggcaatttc 360

catcctcatc acactttatt caccaaggaa agaagtgaaa tggcatcttc tatcgttcaa 420

catctacagg gacatctgtg agatacatct gattgctcga caagcggaca atagatgaca 480

cgttatcaat gctatcactc taaaatgtca tgtctgactg agtccattgc aatcatcact 540

ccatccgaca tcaggtcaca atttatgctt ctattttcca atggatccga atccgattca 600

aacaagatta attctccctc aaaataccca tgaagtgtga gacattgcga aatgttatat 660

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aaacccaatg catttctcgt ctttcagggt ttttttcttc ttcttcatac tatatctcta     720

tatattttat aaattctaac a atg gtt gtt caa gtc ggt att aac ggt ttc       771
                        Met Val Val Gln Val Gly Ile Asn Gly Phe
                        1               5                   10

ggt cgt att ggt cgt att gtc ctt cgt gct act gag tcc aac aag gat       819
Gly Arg Ile Gly Arg Ile Val Leu Arg Ala Thr Glu Ser Asn Lys Asp
                15                  20                  25

gtc caa gtt gtt gct atc aac gat ccc ttc att cct ctc gac tat atg       867
Val Gln Val Val Ala Ile Asn Asp Pro Phe Ile Pro Leu Asp Tyr Met
            30                  35                  40

gtc tac atg ttg aag tac gat act gtt cac ggt cgt ttc gat ggt tcc       915
Val Tyr Met Leu Lys Tyr Asp Thr Val His Gly Arg Phe Asp Gly Ser
        45                  50                  55

gtc gag gcc aag gat ggt aag ctc gtt gtc aac ggt cat gct atc gcc       963
Val Glu Ala Lys Asp Gly Lys Leu Val Val Asn Gly His Ala Ile Ala
    60                  65                  70

gtc tct gct gag cgc gat cct acc tct att cct tgg ggt tcc gct ggt      1011
Val Ser Ala Glu Arg Asp Pro Thr Ser Ile Pro Trp Gly Ser Ala Gly
75                  80                  85                  90

gct gac tac gtt gtc gag tcc act ggg taaatatact gaaatgcatt            1058
Ala Asp Tyr Val Val Glu Ser Thr Gly
                95

atatctcgaa tatctaatct aacattgacg taatagt gtc ttc act acc act gaa     1113
                                        Val Phe Thr Thr Thr Glu
                                        100                 105

gct gcc tct gct cat ctt aag ggt ggt gcc aag aag gtc atc atc tct      1161
Ala Ala Ser Ala His Leu Lys Gly Gly Ala Lys Lys Val Ile Ile Ser
                110                 115                 120

gct ccc tct gct gat gcc ccc atg ttc gtc tgt ggt gtc aac ctc gaa      1209
Ala Pro Ser Ala Asp Ala Pro Met Phe Val Cys Gly Val Asn Leu Glu
            125                 130                 135

gct tac aag tct gaa tac aag gtt atc tcc aac gcc tct tgt acc acc      1257
Ala Tyr Lys Ser Glu Tyr Lys Val Ile Ser Asn Ala Ser Cys Thr Thr
        140                 145                 150

aac tgt ttg gct ccc ctc gcc aag gtc att aac gat aac ttt ggt atc      1305
Asn Cys Leu Ala Pro Leu Ala Lys Val Ile Asn Asp Asn Phe Gly Ile
    155                 160                 165

gct gat ggt ttg atg acc act gtc cac gcc acc act gcc acc caa aag      1353
Ala Asp Gly Leu Met Thr Thr Val His Ala Thr Thr Ala Thr Gln Lys
170                 175                 180                 185

act gtc gat ggt ccc tct cac aag gat tgg aga ggt ggt cgt gcc gct      1401
Thr Val Asp Gly Pro Ser His Lys Asp Trp Arg Gly Gly Arg Ala Ala
                190                 195                 200
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gct gcc aac atc atc ccc tct tcc act ggt gct gcc aag gct gtc ggt     1449
Ala Ala Asn Ile Ile Pro Ser Ser Thr Gly Ala Ala Lys Ala Val Gly
            205                 210                 215

aag gtc att ccc gct ctc aac ggt aag ctc act ggt atg gct ttc cgt     1497
Lys Val Ile Pro Ala Leu Asn Gly Lys Leu Thr Gly Met Ala Phe Arg
        220                 225                 230

gtc ccc acc ccc gat gtc tct gtc gtt gat ttg acc gtc aac ctc tcc     1545
Val Pro Thr Pro Asp Val Ser Val Val Asp Leu Thr Val Asn Leu Ser
    235                 240                 245

aag ggt gct tct tat gat gaa atc aag caa gcc atc aag aag gcc tct     1593
Lys Gly Ala Ser Tyr Asp Glu Ile Lys Gln Ala Ile Lys Lys Ala Ser
250                 255                 260                 265

gaa act acc atg aag ggt gtc ctc ggt tac act tct gat gct gtt gtc     1641
Glu Thr Thr Met Lys Gly Val Leu Gly Tyr Thr Ser Asp Ala Val Val
                270                 275                 280

agc agt gat ttc gtg ggt gaa gtt tgg taagaaacgt tattatttca           1688
Ser Ser Asp Phe Val Gly Glu Val Trp
            285                 290

tcgtttgaat agtttactaa cattgaaaat catagt tct tcc gta ttt gac gct     1742
                                    Ser Ser Val Phe Asp Ala
                                                295

gct gcc ggt atc caa ttg acc ccc act ttt gtt aag ctt atc gct tgg     1790
Ala Ala Gly Ile Gln Leu Thr Pro Thr Phe Val Lys Leu Ile Ala Trp
            300                 305                 310

tat gac aat gag tat ggt tac tct aac cgt gtc gtt gac ctc ctc gtt     1838
Tyr Asp Asn Glu Tyr Gly Tyr Ser Asn Arg Val Val Asp Leu Leu Val
        315                 320                 325

cat gcc gct aag gtc gat ggt gct ctc taaatcgtaa atcatttcta           1885
His Ala Ala Lys Val Asp Gly Ala Leu
    330                 335

gtcattgcat ttcatacaca catctgttac ataaataaac ttcatgtaaa aagtcggtca   1945

taagatcgtt ttttgttaat tagcttatat taatttctgt tccaaccctc tgatatgtaa   2005

aatgttgacg aattgcaagt attttgacag gcagaatgac agcatatatt tgangcctgt   2065

gvacaatctg tgttacataa gattcctggt aaaggatgga tgatattata ttttacagtt   2125

ataagagccg gtattggcac acgaaggaag ccttgcagcg agaaggacga cgctcttttt   2185

tataggctca tcactcaatg agagttgcag gaagcactat tttgtaaatg cctgaaatac   2245

agagaccctc tggactatta ttctcaagaa gcactttaac aagaaaaata tagttctttt   2305

gctaatttca agaccttaat catatatnnc gctttcattt ttatttcatg gtttcattca   2365

atttatagat gtattactac actactgatt gctgttactg ttactatcgc cctggccatt   2425
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gttgttgttg ttgtcgctgc catcgcatcg ccgttattgt catcgc 2471

<210> 25
<211> 337
<212> PRT
<213> Mucor circinelloides

<400> 25

Met Val Val Gln Val Gly Ile Asn Gly Phe Gly Arg Ile Gly Arg Ile
1 5 10 15

Val Leu Arg Ala Thr Glu Ser Asn Lys Asp Val Gln Val Val Ala Ile
20 25 30

Asn Asp Pro Phe Ile Pro Leu Asp Tyr Met Val Tyr Met Leu Lys Tyr
35 40 45

Asp Thr Val His Gly Arg Phe Asp Gly Ser Val Glu Ala Lys Asp Gly
50 55 60

Lys Leu Val Val Asn Gly His Ala Ile Ala Val Ser Ala Glu Arg Asp
65 70 75 80

Pro Thr Ser Ile Pro Trp Gly Ser Ala Gly Ala Asp Tyr Val Val Glu
85 90 95

Ser Thr Gly Val Phe Thr Thr Thr Glu Ala Ala Ser Ala His Leu Lys
100 105 110

Gly Gly Ala Lys Lys Val Ile Ile Ser Ala Pro Ser Ala Asp Ala Pro
115 120 125

Met Phe Val Cys Gly Val Asn Leu Glu Ala Tyr Lys Ser Glu Tyr Lys
130 135 140

Val Ile Ser Asn Ala Ser Cys Thr Thr Asn Cys Leu Ala Pro Leu Ala
145 150 155 160

Lys Val Ile Asn Asp Asn Phe Gly Ile Ala Asp Gly Leu Met Thr Thr
165 170 175

Val His Ala Thr Thr Ala Thr Gln Lys Thr Val Asp Gly Pro Ser His
180 185 190

Lys Asp Trp Arg Gly Gly Arg Ala Ala Ala Ala Asn Ile Ile Pro Ser
195 200 205

Ser Thr Gly Ala Ala Lys Ala Val Gly Lys Val Ile Pro Ala Leu Asn
210 215 220

Gly Lys Leu Thr Gly Met Ala Phe Arg Val Pro Thr Pro Asp Val Ser
225 230 235 240

Val Val Asp Leu Thr Val Asn Leu Ser Lys Gly Ala Ser Tyr Asp Glu
245 250 255

Ile Lys Gln Ala Ile Lys Lys Ala Ser Glu Thr Thr Met Lys Gly Val
260 265 270

Leu Gly Tyr Thr Ser Asp Ala Val Val Ser Ser Asp Phe Val Gly Glu
275 280 285

Val Trp Ser Ser Val Phe Asp Ala Ala Ala Gly Ile Gln Leu Thr Pro
290 295 300

Thr Phe Val Lys Leu Ile Ala Trp Tyr Asp Asn Glu Tyr Gly Tyr Ser
305 310 315 320

Asn Arg Val Val Asp Leu Leu Val His Ala Ala Lys Val Asp Gly Ala
325 330 335

Leu

<210> 26
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide primer

<220>
<221> misc_feature
<222> (12)..(12)
<223> n is a, c, g or t

<220>
<221> misc_feature
<222> (15)..(15)
<223> n is a, c, g or t

<220>
<221> misc_feature
<222> (18)..(18)
<223> n is a, c, g or t

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<221> misc_feature
<222> (21)..(21)
<223> n is a, c, g or t

<220>
<221> misc_feature
<222> (24)..(24)
<223> n is a, c, g or t

<220>
<221> misc_feature
<222> (27)..(27)
<223> n is a, c, g or t

<400> 26
aarttyttyy tngcnacngc nccngtnaay tgg 33

<210> 27
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide primer

<220>
<221> misc_feature
<222> (3)..(3)
<223> n is a, c, g or t

<220>
<221> misc_feature
<222> (6)..(6)
<223> n is a, c, g or t

<220>
<221> misc_feature
<222> (9)..(9)
<223> n is a, c, g or t

<220>
<221> misc_feature
<222> (12)..(12)
<223> n is a, c, g or t

<220>
<221> misc_feature
<222> (18)..(18)
<223> n is a, c, g or t

<400> 27
ccnggnmgng tnaayytnat hgg 23

<210> 28
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide primer

<220>
<221> misc_feature
<222> (3)..(3)
<223> n is a, c, g or t

<220>
<221> misc_feature
<222> (9)..(9)
<223> n is a, c, g or t

<220>
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<222> (12)..(12)
<223> n is a, c, g or t

<220>
<221> misc_feature
<222> (15)..(15)
<223> n is a, c, g or t

<220>
<221> misc_feature
<222> (18)..(18)
<223> n is a, c, g or t

<400> 28
ccncccccanc cngcnccngt 20

<210> 29
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide primer

<220>
<221> misc_feature
<222> (9)..(9)
<223> n is a, c, g or t

<220>

<221> misc_feature
<222> (18)..(18)
<223> n is a, c, g or t

<400> 29
garcayggna thcarccnga ygg 23

<210> 30
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide primer

<220>
<221> misc_feature
<222> (4)..(4)
<223> n is a, c, g or t

<220>
<221> misc_feature
<222> (10)..(10)
<223> n is a, c, g or t

<220>
<221> misc_feature
<222> (13)..(13)
<223> n is a, c, g or t

<400> 30
catnccytcn ccnacrtacc a 21

<210> 31
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide primer

<400> 31
catccttgtt ggactcagta gc 22

<210> 32
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide primer

<400> 32
cttcagggtt agagagagaa gc 22

<210> 33
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide primer

<400> 33
ccttggggtt ttcgagggag g 21

<210> 34
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> oliognucleotide primer

<400> 34
actgcggagc tcattatgat cactgacgaa catccg 36

<210> 35
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> oligonucleotide primer

<400> 35
gcgcatgctt atgattgctg gttaatgac 29

<210> 36
<211> 427
<212> PRT
<213> Mucor circinelloides

<400> 36

Met Ile Thr Asp Glu His Pro Phe Glu Phe Ala Pro Gln Gln Asp Glu
1 5 10 15

Tyr Thr Gln Leu Leu Thr Glu Leu His Asn Glu Tyr Cys Ala Glu Gln
20 25 30

Pro Leu Asp Val Leu Gln Phe Cys Ser Asn Phe Phe Ile Arg Lys Leu
35 40 45

Glu Glu Gln Arg Leu Glu His Arg Asn Asn His His Ser Arg Asn Asn

50 55 60

Leu Phe Asp Thr Asn Asp Thr Ser Asn Asp Leu His Pro Leu Cys Glu
65 70 75 80

Gln Pro Gln Glu Asp Phe Ser Gln Gln Gln Gly Ile Gln Trp Glu Thr
85 90 95

Thr His Met Gly His Pro Asn Asp His Gly Ala Leu His Asp Asp Asp
100 105 110

Asp Asp Pro Leu Glu Asp Glu Asp Asp Glu Glu Phe Asp Lys Phe Ser
115 120 125

Thr Glu Pro Leu Pro Ser Leu Pro Pro Thr Asn Tyr Asn Arg Gly Arg
130 135 140

Arg Thr Ser Val Lys Cys Arg Glu His Gly Thr Gln Arg Gln Pro Arg
145 150 155 160

Leu Cys Gln Gly His His Pro Gln Ile Ser Gly Thr Ser Glu Arg Ile
165 170 175

Lys Val Ser Ile Ser Asn Asn Phe Leu Phe Arg Asn Leu Asp Glu Glu
180 185 190

Gln Tyr Leu Asp Val Val Asn Ala Met Ser Glu Lys Arg Val Val Lys
195 200 205

Gly Thr Thr Val Ile Glu Gln Gly Ser Val Gly Asp Phe Phe Tyr Val
210 215 220

Val Glu Ser Gly Thr Leu Asp Cys Phe Ile Gly Gln Asn Lys Val Thr
225 230 235 240

Asn Tyr Glu Ala Gly Gly Ser Phe Gly Glu Leu Ala Leu Met Tyr Asn
245 250 255

Ala Pro Arg Ala Ala Thr Ile Ile Thr Thr Ser Asp Ser Val Leu Trp
260 265 270

Ala Leu Asp Arg Asn Thr Ser Ala Pro Ser Leu Met Glu Asn Thr Ser
275 280 285

```
Arg Lys Arg Arg Met Tyr Glu Tyr Phe Leu Ser Glu Val Val Leu Leu
    290                 295                 300

Lys Ser Leu Glu Ser Tyr Glu Gln His Lys Ile Ala Asp Ala Leu Glu
305                 310                 315                 320

Ser Val Tyr Phe Glu Asp Gly Gln Glu Val Val Lys Gln Gly Asp Val
                325                 330                 335

Gly Asp Gln Phe Tyr Ile Ile Glu Ser Gly Glu Ala Ile Val Leu Lys
            340                 345                 350

Glu Glu Asn Gly Val Gln Gln Gln Val Asn Gln Leu Glu Arg Gly Ser
        355                 360                 365

Tyr Phe Gly Glu Leu Ala Leu Leu Asn Asp Ala Pro Arg Ala Ala Thr
    370                 375                 380

Val Val Ala His Gly Arg Leu Lys Cys Ala Thr Leu Gly Lys Lys Ala
385                 390                 395                 400

Phe Thr Arg Leu Leu Gly Pro Val Leu Asp Ile Leu Lys Arg Asn Ser
                405                 410                 415

Glu Asn Tyr His Ala Val Ile Asn Gln Gln Ser
            420                 425
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<210> 37
<211> 411
<212> PRT
<213> Aspergillus niger

<400> 37

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Met Ala Glu Ser Ala Phe Pro Ser Ala Gln Gln Pro Leu Arg Val Gly
1               5                   10                  15

Thr Lys Asp Asp Lys Ala Ala Ala Phe Gln Lys Ile Ser Glu Glu Asp
            20                  25                  30

Glu Tyr Glu Val Thr Ser Pro Thr Asp Pro Thr Phe Arg Ser Ala Asn
        35                  40                  45

Ala Ala Ala Ala Ser Ser Ser Thr Gly Ser Pro Phe Phe Gly Gly Ser
    50                  55                  60
```

```
Tyr Gly Glu Asn Ser Gly Pro Ile Arg Phe Asn Arg Ser Pro Phe Asp
65                  70                  75                  80

Asn Gly Pro Arg Glu Glu Asp Glu Glu Gly Ala Asp Glu Phe Pro Pro
                85                  90                  95

Glu Asp Ile Arg Pro Thr Gly Ala Ala Asn Gln Gly Phe Pro Asn Asn
            100                 105                 110

Tyr Ala Leu Gly Arg Arg Thr Ser Val Ser Ala Glu Ser Leu Asn Pro
        115                 120                 125

Thr Ser Ala Gly Ser Asp Ser Trp Thr Pro Pro Tyr His Glu Lys Thr
    130                 135                 140

Glu Glu Gln Leu Ser Arg Leu Lys Thr Ala Val Ser Ser Asn Phe Leu
145                 150                 155                 160

Phe Ser His Leu Asp Asp Asp Gln Phe Lys Ser Val Leu Asp Ala Leu
                165                 170                 175

Val Glu Lys Pro Ile Pro Ala Lys Gly Ile Lys Val Ile Ser Gln Gly
            180                 185                 190

Asp Ala Gly Asp Tyr Phe Tyr Ile Val Glu Asn Gly His Phe Asp Phe
        195                 200                 205

Met Ile His Pro Ser Gly Ser Val Gln Pro Gly Pro Asp Gly Met Gly
    210                 215                 220

Asn Lys Val Gly Ser Val Gly Pro Gly Gly Ser Phe Gly Glu Leu Ala
225                 230                 235                 240

Leu Met Tyr Asn Ala Pro Arg Ala Ala Thr Val Val Ser Val Asp Pro
                245                 250                 255

Lys Ser Thr Leu Trp Ala Leu Asp Arg Ile Thr Phe Arg Arg Ile Leu
            260                 265                 270

Met Asp Ser Ala Phe Gln Arg Arg Arg Met Tyr Glu Ala Phe Leu Glu
        275                 280                 285
```

Glu Val Pro Leu Leu Ser Ser Leu Lys Pro Tyr Glu Arg Ala Lys Ile
290 295 300

Ala Asp Ala Leu Asp Ala Ile Lys Tyr Pro Ala Gly Ser Thr Ile Ile
305 310 315 320

Ala Glu Gly Asp Pro Gly Asp Ala Phe Tyr Leu Leu Glu Ser Gly Glu
325 330 335

Ala Asp Ala Phe Lys Asn Gly Val Glu Gly Pro Val Lys Ser Tyr Lys
340 345 350

Arg Gly Asp Tyr Phe Gly Glu Leu Ala Leu Leu Asp Asp Lys Pro Arg
355 360 365

Ala Ala Ser Ile Val Ala Lys Thr Asp Val Lys Val Ala Lys Leu Gly
370 375 380

Arg Asp Gly Phe Lys Arg Leu Leu Gly Pro Val Glu Asp Ile Met Arg
385 390 395 400

Arg Ala Glu Tyr Glu Ser Asn Pro Val Pro Ala
405 410

<210> 38
<211> 403
<212> PRT
<213> Blastocadiella emersonii

<400> 38

Met Ala Asp Tyr Thr Ile Pro Ser Glu Leu Pro Pro Ile Leu Lys Asp
1 5 10 15

Leu Ser Arg Glu Val Leu Arg His Gln Pro Ala Asp Leu Val Gln Phe
20 25 30

Cys His Asp Tyr Phe Ala Lys Leu Leu Ala Gln Gln Arg Lys Val Leu
35 40 45

Met Asp Ser Ala Asp Pro Ala Thr Lys Ala Thr Ile Ala Ser Thr Ala
50 55 60

Gly Pro Ala Val Asp Ala Asp Glu Ala Ala Arg Ala Asn Ser Tyr Ala
65 70 75 80

```
Tyr Ser Thr Asp Asp Gly Phe Gly Thr Glu Asp Asp Asp Asp Asp Asp
                85                  90                  95

Asp Asp Glu Asp Asp Glu Ala Ala Ile Pro Pro Pro Val Val Asn Arg
            100                 105                 110

Gly Arg Arg Thr Ser Val Ser Ala Glu Ser Met Ala Pro Thr Ala His
        115                 120                 125

Asp Val Asp Ala Val Lys Thr Val Ile Pro Lys Ser Asp Glu Gln Arg
    130                 135                 140

Ala Arg Ile Gln Ala Ser Ile Gly Asn Asn Phe Leu Phe Arg Asn Leu
145                 150                 155                 160

Asp Glu Asp Gln Tyr Thr Asp Val Val Asn Ala Met Ala Glu Lys Lys
                165                 170                 175

Val Ala Ala Gly Glu Val Val Ile Arg Gln Gly Gly Val Gly Asp Tyr
            180                 185                 190

Phe Tyr Val Val Glu Thr Gly Ala Leu Asp Val Phe Val Asn Arg Asn
        195                 200                 205

Gly Asn Gly Asp Val Lys Val Thr Asp Tyr Ser Ala Gly Gly Ser Phe
    210                 215                 220

Gly Glu Leu Ala Leu Met Tyr Asn Ala Pro Arg Ala Ala Thr Val Val
225                 230                 235                 240

Ala Thr Ala Glu Ser Val Leu Trp Ala Leu Asp Arg Val Thr Phe Arg
                245                 250                 255

Arg Ile Leu Met Asp His Thr Ser Arg Lys Arg Arg Met Tyr Glu Ala
            260                 265                 270

Phe Leu Glu Glu Val Pro Leu Leu Ser Ser Leu Glu Pro Tyr Glu Arg
        275                 280                 285

His Lys Ile Ala Asp Ala Leu Glu Ser Val Ala Tyr Ala Asp Gly Asp
    290                 295                 300

Val Val Ile Arg Gln Gly Asp Val Gly Glu Asn Phe Tyr Ile Ile Glu
```

305 310 315 320

Ala Gly Asp Ala Glu Val Ile Lys Ile Asp Glu Asn Gly Glu Glu His
325 330 335

His Phe Arg Pro Leu His Lys Gly Asn Tyr Phe Gly Glu Leu Ala Leu
340 345 350

Leu Ser Asp Lys Pro Arg Val Ala Thr Ile Arg Ala Lys Gly Lys Leu
355 360 365

Lys Cys Ala Lys Leu Gly Lys Lys Ala Phe Thr Arg Leu Leu Gly Pro
370 375 380

Leu Ala Asp Ile Met Gln Arg Asn Thr Gln Asp Tyr Glu Lys Tyr Pro
385 390 395 400

Gly Glu His

<210> 39
<211> 459
<212> PRT
<213> Candida albicans

<400> 39

Met Ser Asn Pro Gln Gln Gln Phe Ile Ser Asp Glu Leu Ser Gln Leu
1 5 10 15

Gln Lys Glu Ile Ile Ser Lys Asn Pro Gln Asp Val Leu Gln Phe Cys
20 25 30

Ala Asn Tyr Phe Asn Thr Lys Leu Gln Ala Gln Arg Ser Glu Leu Trp
35 40 45

Ser Gln Gln Ala Lys Ala Glu Ala Ala Gly Ile Asp Leu Phe Pro Ser
50 55 60

Val Asp His Val Asn Val Asn Ser Ser Gly Val Ser Ile Val Asn Asp
65 70 75 80

Arg Gln Pro Ser Phe Lys Ser Pro Phe Gly Val Asn Asp Pro His Ser
85 90 95

```
Asn His Asp Glu Asp Pro His Ala Lys Asp Thr Lys Thr Asp Thr Ala
            100                 105                 110

Ala Ala Ala Val Gly Gly Gly Ile Phe Lys Ser Asn Phe Asp Val Lys
        115                 120                 125

Lys Ser Ala Ser Asn Pro Pro Thr Lys Glu Val Asp Pro Asp Asp Pro
    130                 135                 140

Ser Lys Pro Ser Ser Ser Ser Gln Pro Asn Gln Gln Ser Ala Ser Ala
145                 150                 155                 160

Ser Ser Lys Thr Pro Ser Ser Lys Ile Pro Val Ala Phe Asn Ala Asn
                165                 170                 175

Arg Arg Thr Ser Val Ser Ala Glu Ala Leu Asn Pro Ala Lys Leu Lys
            180                 185                 190

Leu Asp Ser Trp Lys Pro Pro Val Asn Asn Leu Ser Ile Thr Glu Glu
        195                 200                 205

Glu Thr Leu Ala Asn Asn Leu Lys Asn Asn Phe Leu Phe Lys Gln Leu
    210                 215                 220

Asp Ala Asn Ser Lys Lys Thr Val Ile Ala Ala Leu Gln Gln Lys Ser
225                 230                 235                 240

Phe Ala Lys Asp Thr Val Ile Ile Gln Gln Gly Asp Glu Gly Asp Phe
                245                 250                 255

Phe Tyr Ile Ile Glu Thr Gly Thr Val Asp Phe Tyr Val Asn Asp Ala
            260                 265                 270

Lys Val Ser Ser Ser Ser Glu Gly Ser Ser Phe Gly Glu Leu Ala Leu
        275                 280                 285

Met Tyr Asn Ser Pro Arg Ala Ala Thr Ala Val Ala Ala Thr Asp Val
    290                 295                 300

Val Cys Trp Ala Leu Asp Arg Leu Thr Phe Arg Arg Ile Leu Leu Glu
305                 310                 315                 320

Gly Thr Phe Asn Lys Arg Leu Met Tyr Glu Asp Phe Leu Lys Asp Ile
                325                 330                 335
```

Glu Val Leu Lys Ser Leu Ser Asp His Ala Arg Ser Lys Leu Ala Asp
340 345 350

Ala Leu Ser Thr Glu Met Tyr His Lys Gly Asp Lys Ile Val Thr Glu
355 360 365

Gly Glu Gln Gly Glu Asn Phe Tyr Leu Ile Glu Ser Gly Asn Cys Gln
370 375 380

Val Tyr Asn Glu Lys Leu Gly Asn Ile Lys Gln Leu Thr Lys Gly Asp
385 390 395 400

Tyr Phe Gly Glu Leu Ala Leu Ile Lys Asp Leu Pro Arg Gln Ala Thr
405 410 415

Val Glu Ala Leu Asp Asn Val Ile Val Ala Thr Leu Gly Lys Ser Gly
420 425 430

Phe Gln Arg Leu Leu Gly Pro Val Val Glu Val Leu Lys Glu Gln Asp
435 440 445

Pro Thr Lys Ser Gln Asp Pro Thr Ala Gly His
450 455

<210> 40
<211> 415
<212> PRT
<213> Saccharomyces cerevisiae

<400> 40

Val Ser Ser Leu Pro Lys Glu Ser Gln Ala Glu Leu Gln Leu Phe Gln
1 5 10 15

Asn Glu Ile Asn Ala Ala Asn Pro Ser Asp Phe Leu Gln Phe Ser Ala
20 25 30

Asn Tyr Phe Asn Lys Arg Leu Glu Gln Gln Arg Ala Phe Leu Lys Ala
35 40 45

Arg Glu Pro Glu Phe Lys Ala Lys Asn Ile Val Leu Phe Pro Glu Pro
50 55 60

Glu Glu Ser Phe Ser Arg Pro Gln Ser Ala Gln Ser Gln Ser Arg Ser

65 70 75 80

Arg Ser Ser Val Met Phe Lys Ser Pro Phe Val Asn Glu Asp Pro His
85 90 95

Ser Asn Val Phe Lys Ser Gly Phe Asn Leu Asp Pro His Glu Gln Asp
100 105 110

Thr His Gln Gln Ala Gln Glu Glu Gln Gln His Thr Arg Glu Lys Thr
115 120 125

Ser Thr Pro Pro Leu Pro Met His Phe Asn Ala Gln Arg Arg Thr Ser
130 135 140

Val Ser Gly Glu Thr Leu Gln Pro Asn Asn Phe Asp Asp Trp Thr Pro
145 150 155 160

Asp His Tyr Lys Glu Lys Ser Glu Gln Gln Leu Gln Arg Leu Glu Lys
165 170 175

Ser Ile Arg Asn Asn Phe Leu Phe Asn Lys Leu Asp Ser Asp Ser Lys
180 185 190

Arg Leu Val Ile Asn Cys Leu Glu Glu Lys Ser Val Pro Lys Gly Ala
195 200 205

Thr Ile Ile Lys Gln Gly Asp Gln Gly Asp Tyr Phe Tyr Val Val Glu
210 215 220

Lys Gly Thr Val Asp Phe Tyr Val Asn Asp Asn Lys Val Asn Ser Ser
225 230 235 240

Gly Pro Gly Ser Ser Phe Gly Glu Leu Ala Leu Met Tyr Asn Ser Pro
245 250 255

Arg Ala Ala Thr Val Val Ala Thr Ser Asp Cys Leu Leu Trp Ala Leu
260 265 270

Asp Arg Leu Thr Phe Arg Lys Ile Leu Leu Gly Ser Ser Phe Lys Lys
275 280 285

Arg Leu Met Tyr Asp Asp Leu Leu Lys Ser Met Pro Val Leu Lys Ser
290 295 300

Leu Thr Thr Tyr Asp Arg Ala Lys Leu Ala Asp Ala Leu Asp Thr Lys
305 310 315 320

Ile Tyr Gln Pro Gly Glu Thr Ile Ile Arg Glu Gly Asp Gln Gly Glu
325 330 335

Asn Phe Tyr Leu Ile Glu Tyr Gly Ala Val Asp Val Ser Lys Lys Gly
340 345 350

Gln Gly Val Ile Asn Lys Leu Lys Asp His Asp Tyr Phe Gly Glu Val
355 360 365

Ala Leu Leu Asn Asp Leu Pro Arg Gln Ala Thr Val Thr Ala Thr Lys
370 375 380

Arg Thr Lys Val Ala Thr Leu Gly Lys Ser Gly Phe Gln Arg Leu Leu
385 390 395 400

Gly Pro Ala Val Asp Val Leu Lys Leu Asn Asp Pro Thr Arg His
405 410 415

<210> 41
<211> 412
<212> PRT
<213> Schizosaccharomyces pombe

<400> 41

Met Ser Phe Glu Glu Val Tyr Glu Glu Leu Lys Ala Leu Val Asp Glu
1 5 10 15

Gln Asn Pro Ser Asp Val Leu Gln Phe Cys Tyr Asp Phe Phe Gly Glu
20 25 30

Lys Leu Lys Ala Glu Arg Ser Val Phe Arg Arg Gly Asp Thr Ile Thr
35 40 45

Glu Ser Phe Ser Asp Gly Asp Glu Ser Asp Phe Leu Ser Glu Leu Asn
50 55 60

Asp Met Val Ala Gly Pro Glu Ala Ile Gly Pro Asp Ala Lys Tyr Val
65 70 75 80

Pro Glu Leu Gly Gly Leu Lys Glu Met Asn Val Ser Tyr Pro Gln Asn
85 90 95

Tyr Asn Leu Leu Arg Arg Gln Ser Val Ser Thr Glu Ser Met Asn Pro
100 105 110

Ser Ala Phe Ala Leu Glu Thr Lys Arg Thr Phe Pro Pro Lys Asp Pro
115 120 125

Glu Asp Leu Lys Arg Leu Lys Arg Ser Val Ala Gly Asn Phe Leu Phe
130 135 140

Lys Asn Leu Asp Glu Glu His Tyr Asn Glu Val Leu Asn Ala Met Thr
145 150 155 160

Glu Lys Arg Ile Gly Glu Ala Gly Val Ala Val Ile Val Gln Gly Ala
165 170 175

Val Gly Asp Tyr Phe Tyr Ile Val Glu Gln Gly Glu Phe Asp Val Tyr
180 185 190

Lys Arg Pro Glu Leu Asn Ile Thr Pro Glu Glu Val Leu Ser Ser Gly
195 200 205

Tyr Gly Asn Tyr Ile Thr Thr Ile Ser Pro Gly Glu Tyr Phe Gly Glu
210 215 220

Leu Ala Leu Met Tyr Asn Ala Pro Arg Ala Ala Ser Val Val Ser Lys
225 230 235 240

Thr Pro Asn Asn Val Ile Tyr Ala Leu Asp Arg Thr Ser Phe Arg Arg
245 250 255

Ile Val Phe Glu Asn Ala Tyr Arg Gln Arg Met Leu Tyr Glu Ser Leu
260 265 270

Leu Glu Glu Val Pro Ile Leu Ser Ser Leu Asp Lys Tyr Gln Arg Gln
275 280 285

Lys Ile Ala Asp Ala Leu Gln Thr Val Val Tyr Gln Ala Gly Ser Ile
290 295 300

Val Ile Arg Gln Gly Asp Ile Gly Asn Gln Phe Tyr Leu Ile Glu Asp
305 310 315 320

Gly Glu Ala Glu Val Val Lys Asn Gly Lys Gly Val Val Val Thr Leu
325 330 335

Thr Lys Gly Asp Tyr Phe Gly Glu Leu Ala Leu Ile His Glu Thr Val
340 345 350

Arg Asn Ala Thr Val Gln Ala Lys Thr Arg Leu Lys Leu Ala Thr Phe
355 360 365

Asp Lys Pro Thr Phe Asn Arg Leu Leu Gly Asn Ala Ile Asp Leu Met
370 375 380

Arg Asn Gln Pro Arg Ala Arg Met Gly Met Asp Asn Glu Tyr Gly Asp
385 390 395 400

Gln Ser Leu His Arg Ser Pro Pro Ser Thr Lys Ala
405 410

<210> 42
<211> 248
<212> PRT
<213> Mucor rouxii

<400> 42

Met Asp Glu Glu His Tyr Gln Asp Ile Val Asn Ala Met Ile Glu Lys
1 5 10 15

Pro Val Arg Lys Gly Glu Thr Ile Ile Glu Gln Gly Ala Val Gly Asp
20 25 30

Tyr Phe Tyr Val Val Ala Ser Gly Thr Phe Asp Cys Tyr Ile Lys Lys
35 40 45

Pro Gly Gln Glu Lys Pro Leu Lys Val Thr Ser Tyr Glu Arg Gly Gly
50 55 60

Ser Phe Gly Glu Leu Ala Leu Met Tyr Asn Ala Pro Arg Ala Ala Thr
65 70 75 80

Val Thr Ser Thr Ser Glu Ser Val Leu Trp Ala Leu Asp Arg Val Thr
85 90 95

Phe Arg Thr Ile Leu Met Glu Asn Thr Ala Leu Lys Arg Arg Val Tyr
100 105 110

Glu Ser Phe Leu Glu Glu Val Ala Leu Leu Ile Ser Leu Glu Pro Tyr
115 120 125

Glu Arg His Lys Ile Ala Asp Ser Leu Glu Thr Ile Phe Phe Asn Asp
130 135 140

Asn Gly His Val Ile Ser Gln Gly Asp Ile Gly Asp Gln Phe Tyr Ile
145 150 155 160

Ile Glu Ser Gly Ser Ala Ile Val Tyr Lys Thr Asp Ser Asn Gly Asp
165 170 175

Gln Gln Met Val Asn Gln Leu Glu Arg Gly Ala Tyr Phe Gly Glu Leu
180 185 190

Ala Leu Leu Asn Asp Cys Pro Arg Ala Ala Thr Val Ile Ala Lys Gly
195 200 205

Thr Leu Arg Cys Val Thr Leu Gly Lys Lys Ala Phe Thr Arg Leu Leu
210 215 220

Gly Pro Val His Glu Ile Leu Lys Arg Asn Ala Glu Asn Tyr Gln Ala
225 230 235 240

Ile Leu Ser Gln Gln Gln Gln Tyr
245

<210> 43
<211> 605
<212> PRT
<213> Mucor circinelloides

<400> 43

Met Ala Asp Phe Thr Asp Ser Leu Ile Lys Asn Ile Gly Val His Ser
1 5 10 15

Ser Ser Pro Val Met Thr Ser Val Asn Met Gly Gln Leu Gly Glu Lys
20 25 30

Leu Arg Gln Ala Arg Thr Thr Thr Leu Ala Ser Leu Ser Gln Ala Leu
35 40 45

Ser Lys Lys Pro Glu Ala Ala Ala Ala Ala Ala Thr Ala Pro Asn Ala
50 55 60

Val Asn Glu Ser Thr Thr Thr Pro Thr Thr Met Gln Leu Pro Ala Ser
65 70 75 80

Glu Lys Ala Thr Ser Gln Leu Glu Ile Asn Val Val Glu Ala Arg Asn
85 90 95

Leu Thr Ile Ala Asp Ala Arg Lys Ala Asp Thr Tyr Cys Ile Val His
100 105 110

Tyr Glu Gly Asn Thr Thr Ser Thr Leu Asp Lys Val Asp Asp Gly Ile
115 120 125

Leu Pro Ser Thr Pro Leu Val Ile Lys Ser Gln Val Ala Ser Gly Ala
130 135 140

Phe Lys Ala Phe Glu Ile Met Met Ser Ala Ser Ser Pro Lys Trp Met
145 150 155 160

His Arg Val Asn Phe Asp Val Thr Ala Gly Asn Lys Glu Ile Thr Val
165 170 175

Ser Val Tyr Asp Arg Gly Asn Lys Leu Pro Asn Gly Glu Asp Arg Phe
180 185 190

Leu Gly Met Ser Ser Ile Val Pro Asn Leu Val Asn Lys Lys Thr Val
195 200 205

Glu Leu Ile Phe Pro Leu His Gly Arg Pro Asp Asp Asp Gln Glu Val
210 215 220

Thr Gly Asp Val Arg Leu Gln Val Thr Phe Ile Asp Pro Lys Lys Ala
225 230 235 240

Asn Leu Lys Pro Glu Asp Phe Arg Ile Val Arg Met Ile Gly Gln Gly
245 250 255

Ser Val Gly Lys Val Tyr Glu Val Ile Lys Arg Asp Ser Gly Arg Thr
260 265 270

Tyr Ala Met Lys Val Leu Ser Lys Arg Leu Leu Leu Ala Glu Asn Glu
275 280 285

Val Asp Thr Ala Phe Asn Glu Arg Asn Val Leu Val Gln Ser Leu Ser
290 295 300

Ser Pro Phe Ile Ala Asn Leu Lys Tyr Ser Phe Gln Thr Thr Asn His
305 310 315 320

Leu Phe Leu Val Met Asp Tyr Phe Pro Gly Gly Glu Leu Phe Asp Phe
325 330 335

Leu Glu Arg Glu Arg Cys Leu Ser Glu Lys Arg Cys Gln Phe Phe Ala
340 345 350

Ala Glu Ile Val Cys Ala Phe Asp Asn Ile His Ala Arg Asn Ile Val
355 360 365

Tyr Arg Asn Leu Lys Pro Glu Ser Ile Leu Leu Asp Ala His Gly His
370 375 380

Ile Ala Leu Thr Asp Phe Gly Leu Cys Lys Gln Leu Lys Asn Lys Met
385 390 395 400

Asp Leu Ile Gln Gly Val Pro Gln Val Ile Thr Gln Glu Tyr Leu Ala
405 410 415

Pro Glu Met Val Met Gln Lys Pro Tyr Gly Met Ala Ala Asp Trp Trp
420 425 430

Ser Leu Gly Val Leu Met Phe Glu Leu Leu Thr Gly Ser Pro Pro Phe
435 440 445

His Ser Val Glu Gln Gly Glu Leu Phe Arg Gln Ile Leu Glu Ala Pro
450 455 460

Ile Lys Phe Pro Ala Gly Gly Cys Ile Thr Glu Glu Ala Lys Asp Phe
465 470 475 480

Ile Cys Gln Leu Leu Glu Arg Asp Pro Ala Lys Arg Leu Gly Ser His
485 490 495

Gly Asp Val Ala Gln Val Lys Ala His Pro Phe Phe Lys Asp Leu Asn
500 505 510

Trp Asp Val Val Tyr Lys Lys Gln Met Gln Leu Pro Phe Val Pro Glu
515 520 525

Val Glu Glu Gln Leu Arg Glu Glu Ala Ile Ala Ala Ala Ala Ile
530 535 540

Ser Ile Pro Val Thr Asn Ser Lys Thr Glu Ser Thr Asn Ala Asn Val
545 550 555 560

Met Pro Val Ala Asp Gln Ser Lys Phe Lys Gly Phe Ser Tyr Ile Arg
565 570 575

Glu Asp Val Met Ala Lys Lys Gly Glu His Arg Leu Gly Val Asn Pro
580 585 590

Glu Asp Glu Asp Pro Glu Val Asp Phe Trp Phe Arg Gln
595 600 605

<210> 44
<211> 480
<212> PRT
<213> Aspergillus niger

<400> 44

Met Pro Ser Leu Gly Gly Leu Leu Lys Lys Arg Arg Thr Lys Asp Ser
1 5 10 15

Gln Thr Leu Ser Lys Glu Leu Glu Ala Gly Ser Ala Gln Thr Gln Thr
20 25 30

Ser Pro Asn Ala Ala Glu Asp His His Asn His Asn His His Gln His
35 40 45

His His His Leu Phe His His His His Gln Pro Gln Pro Ala Thr Asn
50 55 60

Ser Gly Ser Ala Ala Asn Thr Pro Pro Gln Pro Gln Asp Ser Val Pro
65 70 75 80

Gln Gln Ser Asn Arg Ser Ser Gly Ala Glu Lys Ser Ser Asp Gly Gln
85 90 95

Val Ala Ser Met Gln Ser Ala Val Thr Gln Ala Ser Pro Ser Ala His
100 105 110

His Thr Ser Gly Leu Pro Gln Pro Asn Ala Asn Ala Ala Ser Ile Gln

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        115                 120                 125

Asn Ile Ile Asn Pro Ser Gln Gln Gly Ala Met His Ser Ala Ser Ser
    130                 135                 140

Gly His Thr Gln Ser His His Ala Gly Arg Ser Asp Ala Arg Thr Thr
145                 150                 155                 160

Lys Gly Lys Tyr Ser Leu Asp Asp Phe Ser Leu Gln Arg Thr Leu Gly
                165                 170                 175

Thr Gly Ser Phe Gly Arg Val His Leu Val Gln Ser Lys His Asn His
            180                 185                 190

Arg Phe Tyr Ala Val Lys Val Leu Lys Lys Ala Gln Val Val Lys Met
        195                 200                 205

Lys Gln Ile Glu His Thr Asn Asp Glu Arg Arg Met Leu Asn Arg Val
    210                 215                 220

Arg His Pro Phe Leu Ile Thr Leu Trp Gly Thr Trp Gln Asp Ser Arg
225                 230                 235                 240

Asn Leu Tyr Met Val Met Asp Phe Val Glu Gly Gly Glu Leu Phe Ser
                245                 250                 255

Leu Val Arg Lys Ser Gln Arg Phe Pro Asn Pro Val Ala Lys Phe Tyr
            260                 265                 270

Ala Ala Glu Val Thr Leu Ala Leu Glu Tyr Leu His Thr Gln Asn Ile
        275                 280                 285

Ile Tyr Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu Asp Arg His Gly
    290                 295                 300

His Leu Lys Ile Thr Asp Phe Gly Phe Ala Lys Glu Val Pro Asp Ile
305                 310                 315                 320

Thr Trp Thr Leu Cys Gly Thr Pro Asp Tyr Leu Ala Pro Glu Val Val
                325                 330                 335

Ser Ser Lys Gly Tyr Asn Lys Ser Val Asp Trp Trp Ser Leu Gly Ile
            340                 345                 350
```

Leu Ile Phe Glu Met Leu Cys Gly Phe Thr Pro Phe Trp Asp Ser Gly
355 360 365

Ser Pro Val Lys Ile Tyr Glu Asn Ile Leu Arg Gly Arg Val Lys Tyr
370 375 380

Pro Pro Tyr Leu His Pro Asp Ala Val Asp Leu Leu Ser Gln Leu Ile
385 390 395 400

Thr Ala Asp Leu Thr Lys Arg Leu Gly Asn Leu His Gly Gly Ser Asp
405 410 415

Asp Val Lys Asn His Pro Trp Phe Ala Glu Val Thr Trp Asp Arg Leu
420 425 430

Ala Arg Lys Asp Ile Asp Ala Pro Tyr Val Pro Pro Ile Arg Gly Gly
435 440 445

Gln Gly Asp Ala Ser Gln Tyr Asp Arg Tyr Pro Glu Glu Thr Glu Gln
450 455 460

Tyr Gly Met Ala Gly Glu Asp Pro His Gly His Leu Phe Pro Asp Phe
465 470 475 480

<210> 45
<211> 425
<212> PRT
<213> Blastocadiella emersonii

<400> 45

Met Thr Leu Ile Asp Lys Leu Met Glu Lys Thr Lys Lys Val Val Gly
1 5 10 15

Ser Ser Asp Lys Asp Ala Pro Ala Pro Ala Ser Pro Ser Ser Pro Ser
20 25 30

Thr Ala Ala Gly Ala Gly Ser Ala Ser Ser Thr Ala Ser Ser Thr Thr
35 40 45

Thr Ala Ala Ala Ser Gly Asn Leu Ser Ile Pro Ser Pro Leu Val Ala
50 55 60

Gly Ser Thr Thr Ser Ser Ser Ile Ser His Ala Gln Lys Met Ala Thr
65 70 75 80

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Ala Ala His Thr Asn Ser Asp Tyr Ser Pro Ser Pro Ala Ala Thr Pro
                85                  90                  95

Ser Ala Pro Leu Asp Ala Val Ala Glu Arg Arg Arg Arg Lys Thr Thr
            100                 105                 110

Leu Ala Asp Leu Glu Leu Arg Gln Thr Leu Gly Thr Gly Ser Phe Gly
        115                 120                 125

Arg Val His Leu Val Arg Leu Arg Ser Thr Gly Lys Tyr Tyr Ala Met
    130                 135                 140

Lys Val Leu Lys Lys Ala Glu Val Val Lys His Lys Gln Val Glu His
145                 150                 155                 160

Thr Leu Asn Glu Lys Gly Ile Leu Glu Gln Ile Asp His Pro Phe Leu
                165                 170                 175

Val Ala Leu His Ser Ser Phe Gln Asp Ser Ala Asn Leu Tyr Met Val
            180                 185                 190

Met Glu Tyr Val Thr Gly Gly Glu Leu Phe Thr Tyr Leu Arg Arg Ser
        195                 200                 205

Gln Arg Phe Ser Asn Asn Val Ala Lys Phe Tyr Ala Ala Glu Val Val
    210                 215                 220

Leu Ala Phe Glu Tyr Leu His Ser Lys Asp Ile Ile Tyr Arg Asp Leu
225                 230                 235                 240

Lys Pro Glu Asn Leu Leu Leu Asp Ala Gln Gly His Val Lys Ile Thr
                245                 250                 255

Asp Phe Gly Phe Ala Lys His Val Pro Asp Ile Thr Trp Thr Leu Cys
            260                 265                 270

Gly Thr Pro Asp Tyr Leu Ala Pro Glu Ile Ile Gln Ser Arg Gly Tyr
        275                 280                 285

Gly Arg Ala Val Asp Trp Tyr Ala Leu Gly Val Leu Ile Phe Glu Met
    290                 295                 300
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Leu Ala Gly Tyr Pro Pro Phe Tyr Asp Glu Asp His Val Arg Met Tyr
305                 310                 315                 320

Glu Lys Ile Leu Gln Gly Lys Val Lys Trp Pro Ser His Phe Asp Pro
                325                 330                 335

Ala Ala Lys Asp Leu Leu Lys Arg Leu Leu Thr Thr Asp Leu Thr Lys
            340                 345                 350

Arg Tyr Gly Asn Leu Lys Gly Gly Ser Lys Asp Ile Lys Met His Lys
        355                 360                 365

Trp Phe Ala Gly Leu Asp Trp Thr Lys Leu Phe Asn Lys Gln Ile Pro
    370                 375                 380

Pro Pro Tyr Thr Pro Pro Asn Arg Gly Asp Gly Asp Thr Ser Asn Phe
385                 390                 395                 400

Asp Ala Tyr Pro Glu Glu Thr Glu Pro Tyr Gly Lys Val Gln Pro Asp
                405                 410                 415

Pro Tyr Ala Gln Leu Phe Lys Asp Phe
            420                 425
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<210> 46
<211> 442
<212> PRT
<213> Candida albicans

<400> 46

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Met Val Asn Leu Leu Lys Lys Leu His Ile Thr Lys Ser His Gln Ser
1               5                   10                  15

Asn His Ser Asn Ser Asp Ser Asn Ser Leu Asn Ser Asn Thr Ser Met
            20                  25                  30

Asp Asn His Gln Gln Gln Gln Gln Leu Gln Gln Tyr Gln Gln Gln Phe
        35                  40                  45

Gln Gln Pro Gln Gln Gln Leu Tyr Pro Gly Glu Gln Ile Val His Pro
    50                  55                  60

Ala Ala Ala Gln Thr Gly Gln Asn Thr Thr Asn Val Thr Ala Val Ser
65                  70                  75                  80
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Ser Ser Asn Ile Thr Gln Ser Ala Thr Ser Ser Leu His Ser Gln Gln
                85                  90                  95

Leu Gln His Val Asp Val Ser Lys Ser Ala Ala Glu Glu Ala Ile Arg
            100                 105                 110

Arg Ser Leu Leu Pro Glu Arg Ser Thr Val Ser Lys Gly Lys Tyr Ser
        115                 120                 125

Leu Thr Asp Phe Ser Ile Met Arg Thr Leu Gly Thr Gly Ser Phe Gly
    130                 135                 140

Arg Val His Leu Val Arg Ser Val His Asn Gly Arg Tyr Tyr Ala Ile
145                 150                 155                 160

Lys Val Leu Lys Lys His Gln Val Val Lys Met Lys Gln Val Glu His
                165                 170                 175

Thr Asn Asp Glu Arg Arg Met Leu Lys Leu Val Glu His Pro Phe Leu
            180                 185                 190

Ile Arg Met Trp Gly Thr Phe Gln Asp Ser Lys Asn Leu Phe Met Val
        195                 200                 205

Met Asp Tyr Ile Glu Gly Gly Glu Leu Phe Ser Leu Leu Arg Lys Ser
    210                 215                 220

Gln Arg Phe Pro Asn Pro Val Ala Lys Phe Tyr Ala Ala Glu Val Thr
225                 230                 235                 240

Leu Ala Leu Glu Tyr Leu His Ser His Asp Ile Ile Tyr Arg Asp Leu
                245                 250                 255

Lys Pro Glu Asn Ile Leu Leu Asp Arg Asn Gly His Ile Lys Ile Thr
            260                 265                 270

Asp Phe Gly Phe Ala Lys Glu Val Ser Thr Val Thr Trp Thr Leu Cys
        275                 280                 285

Gly Thr Pro Asp Tyr Ile Ala Pro Glu Val Ile Thr Thr Lys Pro Tyr
    290                 295                 300

Asn Lys Ser Val Asp Trp Trp Ser Leu Gly Val Leu Ile Phe Glu Met
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305 310 315 320

Leu Ala Gly Tyr Thr Pro Phe Tyr Asp Ser Thr Pro Met Lys Thr Tyr
325 330 335

Glu Lys Ile Leu Ala Gly Lys Ile His Tyr Pro Ser Phe Phe Gln Pro
340 345 350

Asp Val Ile Asp Leu Leu Thr Lys Leu Ile Thr Ala Asp Leu Thr Arg
355 360 365

Arg Leu Gly Asn Leu Ile Asn Gly Pro Ala Asp Ile Arg Asn His Pro
370 375 380

Trp Phe Ser Glu Val Val Trp Glu Lys Leu Leu Ala Lys Asp Ile Glu
385 390 395 400

Thr Pro Tyr Glu Pro Pro Ile Thr Ala Gly Val Gly Asp Ser Ser Leu
405 410 415

Phe Asp His Tyr Pro Glu Glu Gln Leu Asp Tyr Gly Ser Gln Gly Glu
420 425 430

Asp Pro Tyr Ala Ser Tyr Phe Leu Asp Phe
435 440

<210> 47
<211> 380
<212> PRT
<213> Saccharomyces cerevisiae

<400> 47

Met Glu Phe Val Ala Glu Arg Ala Gln Pro Val Gly Gln Thr Ile Gln
1 5 10 15

Gln Gln Asn Val Asn Thr Tyr Gly Gln Gly Val Leu Gln Pro His His
20 25 30

Asp Leu Gln Gln Arg Gln Gln Gln Gln Gln Arg Gln His Gln Gln
35 40 45

Leu Leu Thr Ser Gln Leu Pro Gln Lys Ser Leu Val Ser Lys Gly Lys
50 55 60

Tyr Thr Leu His Asp Phe Gln Ile Met Arg Thr Leu Gly Thr Gly Ser
65 70 75 80

Phe Gly Arg Val His Leu Val Arg Ser Val His Asn Gly Arg Tyr Tyr
85 90 95

Ala Ile Lys Val Leu Lys Lys Gln Gln Val Val Lys Met Lys Gln Val
100 105 110

Glu His Thr Asn Asp Glu Arg Arg Met Leu Lys Leu Val Glu His Pro
115 120 125

Phe Leu Ile Arg Met Trp Gly Thr Phe Gln Asp Ala Arg Asn Ile Phe
130 135 140

Met Val Met Asp Tyr Ile Glu Gly Gly Glu Leu Phe Ser Leu Leu Arg
145 150 155 160

Lys Ser Gln Arg Phe Pro Asn Pro Val Ala Lys Phe Tyr Ala Ala Glu
165 170 175

Val Ile Leu Ala Leu Glu Tyr Leu His Ala His Asn Ile Ile Tyr Arg
180 185 190

Asp Leu Lys Pro Glu Asn Ile Leu Leu Asp Arg Asn Gly His Ile Lys
195 200 205

Ile Thr Asp Phe Gly Phe Ala Lys Glu Val Gln Thr Val Thr Trp Thr
210 215 220

Leu Cys Gly Thr Pro Asp Tyr Ile Ala Pro Glu Val Ile Thr Thr Lys
225 230 235 240

Pro Tyr Asn Lys Ser Val Asp Trp Trp Ser Leu Gly Val Leu Ile Tyr
245 250 255

Glu Met Leu Ala Gly Tyr Thr Pro Phe Tyr Asp Thr Thr Pro Met Lys
260 265 270

Thr Tyr Glu Lys Ile Leu Gln Gly Lys Val Val Tyr Pro Pro Tyr Phe
275 280 285

His Pro Asp Val Val Asp Leu Leu Ser Lys Leu Ile Thr Ala Asp Leu
290 295 300

Thr Arg Arg Ile Gly Asn Leu Gln Ser Gly Ser Arg Asp Ile Lys Ala
305 310 315 320

His Pro Trp Phe Ser Glu Val Val Trp Glu Arg Leu Leu Ala Lys Asp
325 330 335

Ile Glu Thr Pro Tyr Glu Pro Pro Ile Thr Ser Gly Ile Gly Asp Thr
340 345 350

Ser Leu Phe Asp Gln Tyr Pro Glu Glu Gln Leu Asp Tyr Gly Ile Gln
355 360 365

Gly Asp Asp Pro Tyr Ala Glu Tyr Phe Gln Asp Phe
370 375 380

<210> 48
<211> 512
<212> PRT
<213> Schizosaccharomyces pombe

<400> 48

Met Asp Thr Thr Ala Val Ala Ser Lys Gly Ser Thr Asn Val Gly Ser
1 5 10 15

Ser Thr Asp Thr Leu Ser Thr Ser Ala Ser Leu His Pro Ser Met Asn
20 25 30

Ala Gly Ser Val Asn Glu Tyr Ser Glu Gln Gln Arg His Gly Thr Asn
35 40 45

Ser Phe Asn Gly Lys Pro Ser Val His Asp Ser Val Gly Ser Asp Ala
50 55 60

Ser Val Ser Asn Gly His Asn Asn His Asn Glu Ser Ser Leu Trp Thr
65 70 75 80

Ser Gly Ile Pro Lys Ala Leu Glu Glu Ala Thr Lys Ser Lys Lys Pro
85 90 95

Asp Ser Leu Val Ser Thr Ser Thr Ser Gly Cys Ala Ser Ala His Ser
100 105 110

Val Gly Tyr Gln Asn Ile Asp Asn Leu Ile Pro Ser Pro Leu Pro Glu

115 120 125

Ser Ala Ser Arg Ser Ser Ser Gln Ser Ser His Gln Arg His Ser Arg
130 135 140

Asp Gly Arg Gly Glu Leu Gly Ser Glu His Gly Glu Arg Arg Ser Ala
145 150 155 160

Met Asp Gly Leu Arg Asp Arg His Ile Arg Lys Val Arg Val Ser Gln
165 170 175

Leu Leu Asp Leu Gln Arg Arg Arg Ile Arg Pro Ala Asp His Thr Thr
180 185 190

Lys Asp Arg Tyr Gly Ile Gln Asp Phe Asn Phe Leu Gln Thr Leu Gly
195 200 205

Thr Gly Ser Phe Gly Arg Val His Leu Val Gln Ser Asn His Asn Arg
210 215 220

Leu Tyr Tyr Ala Ile Lys Val Leu Glu Lys Lys Lys Ile Val Asp Met
225 230 235 240

Lys Gln Ile Glu His Thr Cys Asp Glu Arg Tyr Ile Leu Ser Arg Val
245 250 255

Gln His Pro Phe Ile Thr Ile Leu Trp Gly Thr Phe Gln Asp Ala Lys
260 265 270

Asn Leu Phe Met Val Met Asp Phe Ala Glu Gly Gly Glu Leu Phe Ser
275 280 285

Leu Leu Arg Lys Cys His Arg Phe Pro Glu Lys Val Ala Lys Phe Tyr
290 295 300

Ala Ala Glu Val Ile Leu Ala Leu Asp Tyr Leu His His Asn Gln Ile
305 310 315 320

Val Tyr Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu Asp Arg Phe Gly
325 330 335

His Leu Lys Ile Val Asp Phe Gly Phe Ala Lys Arg Val Ser Thr Ser
340 345 350

Asn Cys Cys Thr Leu Cys Gly Thr Pro Asp Tyr Leu Ala Pro Glu Ile
355 360 365

Ile Ser Leu Lys Pro Tyr Asn Lys Ala Ala Asp Trp Trp Ser Leu Gly
370 375 380

Ile Leu Ile Phe Glu Met Leu Ala Gly Tyr Pro Pro Phe Tyr Ser Glu
385 390 395 400

Asn Pro Met Lys Leu Tyr Glu Asn Ile Leu Glu Gly Lys Val Asn Tyr
405 410 415

Pro Ser Tyr Phe Ser Pro Ala Ser Ile Asp Leu Leu Ser His Leu Leu
420 425 430

Gln Arg Asp Ile Thr Cys Arg Tyr Gly Asn Leu Lys Asp Gly Ser Met
435 440 445

Asp Ile Ile Met His Pro Trp Phe Arg Asp Ile Ser Trp Asp Lys Ile
450 455 460

Leu Thr Arg Lys Ile Glu Val Pro Tyr Val Pro Pro Ile Gln Ala Gly
465 470 475 480

Met Gly Asp Ser Ser Gln Phe Asp Ala Tyr Ala Asp Val Ala Thr Asp
485 490 495

Tyr Gly Thr Ser Glu Asp Pro Glu Phe Thr Ser Ile Phe Lys Asp Phe
500 505 510

<210> 49
<211> 70
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 49
tttctctctt tcagggtttt tttcttcttc ttcatactat atctctatat attttataaa 60

tctcgagatg 70

<210> 50
<211> 125
<212> PRT

<213> Mucor circinelloides

<400> 50

Lys Phe Phe Leu Ala Thr Ala Pro Val Asn Trp Glu His Asn Lys Pro
1 5 10 15

Leu Lys Arg Phe Ala Leu Pro Gly Gly Ser Ala Ala Ala Ala Pro Gly
20 25 30

Gly Arg Ser Pro Asn Gly Ser Gly Glu Ser Ile Ser Cys Val Leu Trp
35 40 45

Asn Asp Leu Phe Phe Ile Thr Gly Thr Asp Ile Val Arg Ser Leu Thr
50 55 60

Phe Arg Phe His Ala Phe Gly Arg Pro Val Thr Asn Ala Lys Lys Phe
65 70 75 80

Glu Glu Gly Ile Phe Ser Asp Leu Arg Asn Leu Lys Pro Gly His Asp
85 90 95

Ala Arg Leu Glu Glu Pro Lys Ser Glu Leu Leu Asp Met Leu Tyr Lys
100 105 110

Asn Asn Cys Ile Arg Thr Gln Lys Lys Gln Lys Val Phe
115 120 125

<210> 51
<211> 111
<212> PRT
<213> Saccharomyces cerevisiae

<400> 51

Lys Phe Phe Leu Ala Thr Ala Pro Val Asn Trp Gln Glu Asn Gln Ile
1 5 10 15

Ile Arg Arg Tyr Tyr Leu Asn Ser Gly Gln Gly Phe Val Ser Cys Val
20 25 30

Phe Trp Asn Asn Leu Tyr Tyr Ile Thr Gly Thr Asp Ile Val Lys Cys
35 40 45

Cys Leu Tyr Arg Met Gln Lys Phe Gly Arg Glu Val Val Gln Lys Lys
50 55 60

Lys Phe Glu Glu Gly Ile Phe Ser Asp Leu Arg Asn Leu Lys Cys Gly
65 70 75 80

Ile Asp Ala Thr Leu Glu Gln Pro Lys Ser Glu Phe Leu Ser Phe Leu
85 90 95

Phe Arg Asn Met Cys Leu Lys Thr Gln Lys Lys Gln Lys Val Phe
100 105 110

<210> 52
<211> 111
<212> PRT
<213> Candida albicans

<400> 52

Lys Phe Phe Leu Ala Thr Ala Pro Ala Asn Trp Gln Glu Asn Gln Val
1 5 10 15

Ile Arg Arg Tyr Tyr Leu Asn His Asp Glu Gly Phe Val Ser Cys Val
20 25 30

Tyr Trp Asn Asn Leu Tyr Phe Ile Thr Gly Thr Asp Ile Val Arg Cys
35 40 45

Ile Val Tyr Lys Phe Glu His Phe Gly Arg Lys Ile Ile Asp Arg Lys
50 55 60

Lys Phe Glu Glu Gly Ile Phe Ser Asp Leu Arg Asn Leu Lys Cys Gly
65 70 75 80

Ala Asp Ala Ile Leu Glu Pro Pro Arg Ser Glu Phe Leu Glu Phe Leu
85 90 95

Phe Lys Asn Ser Cys Leu Arg Thr Gln Lys Lys Gln Lys Val Phe
100 105 110

<210> 53
<211> 111
<212> PRT
<213> Kluyveromyces lactis

<400> 53

Lys Phe Phe Leu Ala Thr Arg Pro Ala Asn Trp Gln Glu Asn Gln Val
1 5 10 15

Ile Arg Arg Tyr Tyr Leu Ser Asn Asp Glu Gly Phe Val Ser Cys Val
20 25 30

Phe Trp Asn Asn Leu Tyr Tyr Ile Thr Gly Thr Asp Ile Val Arg Cys
35 40 45

Cys Ala Tyr Arg Met Gln Lys Phe Gly Arg Glu Ile Val Glu Arg Lys
50 55 60

Lys Phe Glu Glu Gly Ile Phe Ser Asp Leu Arg Asn Leu Lys Cys Gly
65 70 75 80

Ile Asp Ala Thr Leu Glu Lys Pro Lys Ser Asp Leu Leu Ala Phe Leu
85 90 95

Tyr Lys Asn Met Cys Leu Lys Thr Gln Lys Lys Gln Lys Val Phe
100 105 110

<210> 54
<211> 110
<212> PRT
<213> Aspergillus nidulans

<400> 54

Lys Tyr Phe Leu Leu Ser Ala Pro Val Asp Trp Gln Pro Asp Gln Leu
1 5 10 15

Ile Arg Arg Phe Leu Leu Pro Thr Gly Asp Tyr Ile Ser Cys Val Leu
20 25 30

Trp Ser Asn Leu Phe His Ile Ser Gly Thr Asp Ile Val Arg Cys Leu
35 40 45

Ala Phe Arg Phe Gln Ala Phe Gly Arg Pro Val Lys Asn Ser Lys Lys
50 55 60

Phe Glu Glu Gly Ile Phe Ser Asp Leu Arg Asn Leu Lys Ala Gly Thr
65 70 75 80

Asp Ala Thr Leu Glu Glu Pro Lys Ser Pro Phe Leu Asp Phe Leu Tyr
85 90 95

Lys Asn Asn Cys Ile Arg Thr Gln Lys Lys Gln Lys Val Phe
100 105 110

<210> 55
<211> 111
<212> PRT
<213> Clavispora lusitaniae

<400> 55

Lys Phe Phe Leu Ala Thr Ala Pro Ala Asn Trp Gln Glu Asn Gln Val
1 5 10 15

Ile Arg Arg Tyr Tyr Leu Asn Asn Asp Glu Gly Phe Val Ser Cys Val
20 25 30

Phe Trp Asn Asn Leu Tyr Phe Val Thr Gly Thr Asp Ile Val Arg Cys
35 40 45

Ile Leu Tyr Lys Phe Gln His Phe Gly Arg Thr Ile Thr Asp Arg Lys
50 55 60

Lys Phe Glu Glu Gly Ile Phe Ser Asp Leu Arg Asn Leu Lys Ala Gly
65 70 75 80

Ser Asp Ser Val Leu Glu Glu Pro Lys Ser Pro Phe Leu Glu Phe Leu
85 90 95

Tyr Asn Asn Ser Cys Leu Arg Thr Gln Lys Lys Gln Lys Val Phe
100 105 110

<210> 56
<211> 103
<212> PRT
<213> Mucor circinelloides

<400> 56

Tyr Ile Val Gln Glu Ile Met Glu Ala Asp Leu His Gln Ile Ile Arg
1 5 10 15

Ser Gly Gln Pro Leu Thr Asp Ala His Phe Gln Tyr Phe Val Tyr Gln
20 25 30

Ile Cys Arg Gly Leu Lys Tyr Ile His Ser Ala Asn Val Leu His Arg
35 40 45

Asp Leu Lys Pro Gly Lys Leu Arg Ile Asn Gly Ile Thr Gln Ile Thr
50 55 60

Glu Pro Lys Ile Cys Asp Phe Gly Leu Ala Arg Gly Tyr Ser Glu Asn
65 70 75 80

Asp Glu His Asn Val Gly Phe Met Thr Glu Tyr Val Ala Thr Arg Trp
85 90 95

Tyr Arg Ala Pro Glu Ile Met
100

<210> 57
<211> 100
<212> PRT
<213> Schizosaccharomyces pombe

<400> 57

Tyr Ile Tyr Glu Glu Leu Met Glu Ala Asp Leu Asn Ala Ile Ile Lys
1 5 10 15

Ser Gly Gln Pro Leu Thr Asp Ala His Phe Gln Ser Phe Ile Tyr Gln
20 25 30

Ile Leu Cys Gly Leu Lys Tyr Ile His Ser Ala Asn Val Ile His Arg
35 40 45

Asp Leu Lys Pro Gly Asn Leu Leu Val Asn Ala Asp Cys Glu Leu Lys
50 55 60

Ile Cys Asp Phe Gly Leu Ala Arg Gly Cys Ser Glu Asn Pro Glu Glu
65 70 75 80

Asn Pro Gly Phe Met Thr Glu Tyr Val Ala Thr Arg Trp Tyr Arg Ala
85 90 95

Pro Glu Ile Met
100

<210> 58
<211> 100
<212> PRT
<213> Candida albicans

<400> 58

Tyr Leu Tyr Glu Glu Leu Met Glu Cys Asp Met His Gln Ile Ile Arg
1 5 10 15

Ser Gly Gln Pro Leu Ser Asp Gln His Tyr Gln Ser Phe Ile Tyr Gln
20 25 30

Val Leu Cys Gly Leu Asn Phe Ile His Ser Ala Asp Val Leu His Arg
35 40 45

Asp Leu Lys Pro Gly Asn Leu Leu Val Asn Ala Asp Cys Glu Leu Lys
50 55 60

Ile Cys Asp Phe Gly Leu Ala Arg Gly Phe Ser Glu Asn Pro Asp Glu
65 70 75 80

Asn Ala Gly Phe Met Thr Glu Tyr Val Ala Thr Arg Trp Tyr Arg Ala
85 90 95

Pro Glu Ile Met
100

<210> 59
<211> 98
<212> PRT
<213> Fusarium oxysporum

<400> 59

Tyr Leu Ile Gln Glu Leu Met Glu Thr Asp Met His Arg Val Ile Arg
1 5 10 15

Thr Gln Asp Leu Ser Asp Asp His Cys Gln Tyr Phe Ile Tyr Gln Thr
20 25 30

Leu Arg Ala Leu Lys Ala Met His Ser Ala Asn Val Leu His Arg Asp
35 40 45

Leu Lys Pro Ser Asn Leu Leu Leu Asn Ala Asn Cys Asp Leu Lys Val
50 55 60

Cys Asp Phe Gly Leu Ala Arg Ser Ala Ala Ser Gln Glu Asp Asn Ser
65 70 75 80

Gly Phe Met Thr Glu Tyr Val Ala Thr Arg Trp Tyr Arg Ala Pro Glu
85 90 95

Ile Met

<210> 60
<211> 100
<212> PRT
<213> Saccharomyces cerevisiae

<400> 60

Tyr Leu Tyr Glu Glu Leu Met Glu Cys Asp Met His Gln Ile Ile Lys
1 5 10 15

Ser Gly Gln Pro Leu Thr Asp Ala His Tyr Gln Ser Phe Thr Tyr Gln
20 25 30

Ile Leu Cys Gly Leu Lys Tyr Ile His Ser Ala Asp Val Leu His Arg
35 40 45

Asp Leu Lys Pro Gly Asn Leu Leu Val Asn Ala Asp Cys Gln Leu Lys
50 55 60

Ile Cys Asp Phe Gly Leu Ala Arg Gly Tyr Ser Glu Asn Pro Val Glu
65 70 75 80

Asn Ser Gln Phe Leu Thr Glu Tyr Val Ala Thr Arg Trp Tyr Arg Ala
85 90 95

Pro Glu Ile Met
100

<210> 61
<211> 98
<212> PRT
<213> Candida albicans

<400> 61

Tyr Leu Ile Gln Glu Leu Met Glu Thr Asp Leu His Arg Val Ile Arg
1 5 10 15

Thr Gln Asn Leu Ser Asp Asp His Ile Gln Tyr Phe Ile Tyr Gln Thr
20 25 30

Leu Arg Ala Leu Lys Ala Met His Ser Ala Asn Val Leu His Arg Asp
35 40 45

Leu Lys Pro Ser Asn Leu Leu Leu Asn Ser Asn Cys Asp Leu Lys Ile

50 55 60

Cys Asp Phe Gly Leu Ala Arg Ser Ile Ala Ser Gln Glu Asp Asn Tyr
65 70 75 80

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Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
20 25 30

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
35 40 45

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
50 55 60

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
65 70 75 80

Xaa Xaa Xaa Xaa Xaa Arg Asp Xaa Lys Xaa Xaa Xaa Xaa Xaa Xaa Xaa
85 90 95

Xaa Xaa Cys

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Phe Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Arg Glu Xaa Xaa Xaa
1 5 10 15

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
20 25 30

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
35 40 45

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
50 55 60

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
65 70 75 80

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
85 90 95

Xaa Xaa Xaa Arg Asp Xaa Lys Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
100 105 110

Cys